SONY

PROFESSIONAL MIXING CONSOLE

MXP-2900 Series

MXP-2916
MXP-2926
MXP-2936

OPERATION AND MAINTENANCE MANUAL
1st Edition (Revised 2)
Serial No. 10001 and Higher

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WARNING

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instuction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

THIS APPARATUS COMPLIES WITH THE CLASS A LIMITS FOR RADIO NOISE EMISSIONS SET OUT IN RADIO INTER-FERENCE REGULATIONS.

CET APPAREIL EST CONFORME AUX NORMES CLASS A, POUR BRUITS RADIOELECTRIQUES, TEL QUE SPECIFIER DANS LE REGLEMENT SUR LE BROUILLAGE RADIOELECTRIQU E.

SAFETY CHECK-OUT

After repair or service, the following safety checks must be performed before releasing the equipment to the customer:

Using one of the three methods outlined below, check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage.

LEAKAGE TEST

The AC leakage current from any exposed metal part to earth ground, or to any other exposed metal part having a return to chassis, must not exceed 3.5 mA. Leakage current can be measured by any one of the following methods:

1. With a commercial leakage tester, such as the Simpson 229 or RCA WT-540A. When using such instruments, the manufacturer's instructions must be followed exactly.
2. With a battery-operated AC milliammeter, such as the Data Precision 245.
3. By using a VOM or battery-operated AC Voltmeter to measure the voltage drop across a 1.5k resistor (see Figure A). With this resistor value, the "limit" indication is 5.25V, and the meter used must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH 63Trd are suitable passive VOM types. Also, most battery-operated digital multimeters having a 20 VAC range are suitable for these measurements.

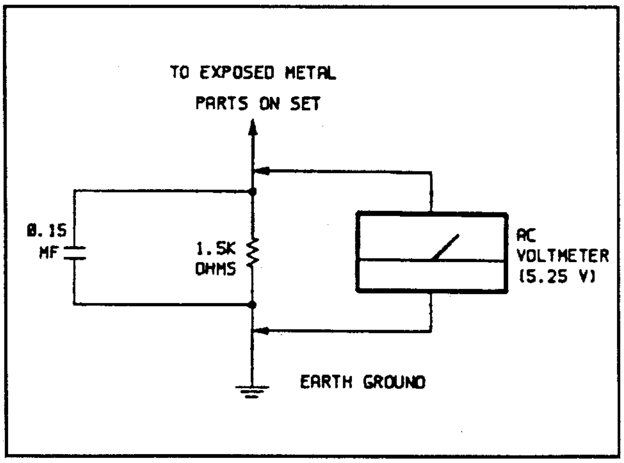

Figure A. Using an AC Voltmeter to check AC Leakage

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SUPPLEMENT-2

SONY

BACKUP FILE

PROFESSIONAL MIXING CONSOLE

MXP-2900 Series

MXP-2916
MXP-2926
MXP-2936

OPERATION AND MAINTENANCE MANUAL
1st Edition (Revised 2)

THIS PUBLICATION SUPPLEMENTS O & M MANUAL T-9456-105-2

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30 SEPTEMBER 1992

Purpose:

This supplement provides a description and parts lists for:

MXP-2900F Series mixer consoles
MXP-2916F
MXP-2926F
MXP-2936F

These consoles support external metering facilities, they have no meter housing.

Instructions:

File this supplement in the front of the manual.

Sony Corporation
Communication Products Group

Published by Sony Professional Products Company

Printed in U.S.A.
1992 10 90

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For the customers in the U.S.A.
This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his or her own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

For the customers in Canada
This apparatus complies with the Class A limits for radio noise emissions set out in Radio interference Regulations.

Pour les utilisateurs au Canade
Cet appareil est conforme aux normes Classe A pour bruits radioèlectriques, spècifiès dans le Règlement sur le brouillage radioèlectrique.

SAFETY CHECK-OUT

After repair or service, the following safety checks must be performed before releasing the equipment to the customer:

Using one of the three methods outlined below, check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage.

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The AC leakage current from any exposed metal part to earth ground, or to any other exposed metal part having a return to chassis, must not exceed 3.5 mA. Leakage current can be measured by any one of the following methods:

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2. With a battery-operated AC milliammeter, such as the Data Precision 245.
3. By using a VOM or battery-operated AC Voltmeter to measure the voltage drop across a 1.5k resistor (see Figure A). With this resistor value, the "limit" indication is 5.25V, and the meter used must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH 63Trd are suitable passive VOM types. Also, most battery-operated digital multimeters having a 20 VAC range are suitable for these measurements.

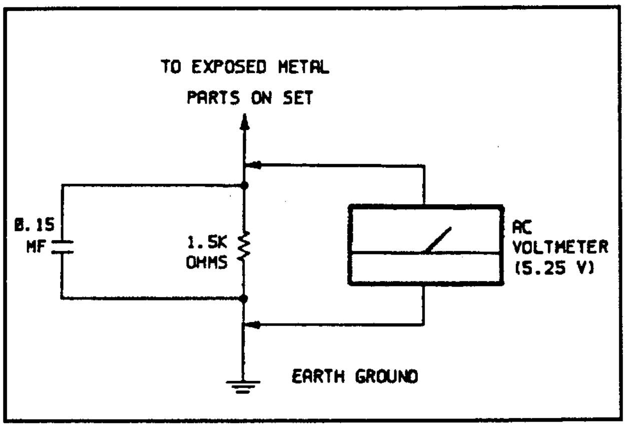


Figure A. Using an AC Voltmeter to check AC Leakage

MXP-2900F SERIES PROFESSIONAL MIXING CONSOLES

MXP-2916F, MXP2926F, MXP-2936F

1.0 INTRODUCTION

Mixer consoles assembled in frames without meter housings have been added to the Sony **MXP-2900** mixer series. They are available in 16-channel, 26-channel and 36-channel versions and are designated **MXP-2916F, MXP-2926F, MXP-2936F**. They are produced for users that prefer a remote, rather than an integrated, metering facility.

Operation and performance characteristics for mixer consoles, described in the MXP-2900 series O & M manual, also apply to the consoles assembled in **MXP-2916F, MXP-2926F** and **MXP-2936F** frames. Information contained in this supplement is for **MXP-2900F** series consoles **only** and is in addition to existing information in the O & M manual.

1.1 PHYSICAL CHARACTERISTICS

MXP-2900F series consoles' dimensions and weights are given in Table 1.

	MXP-2916F		MXP-2916F		MXP-2916F	
	cm	in	cm	in	cm	in
width	85.09	33.50	125.70	49.50	163.37	65.50
depth	59.69	23.50	59.69	23.50	59.69	23.50
height	16.89	6.65	16.89	6.65	16.89	6.65
weight	51.5 Kg (113 lbs)		74.0 Kg (163 lbs)		96.6 Kg (213 lbs)	

Table 1. Dimensions and Weights

1.2 CONNECTIONS FOR EDITORS AND METERS

All editor related connectors and two remote meter connectors are housed in the remote connector coffin located at the bottom, rear of the console, see Figure 1.

1.2.1 Editor Connectors

The EI-21 Interface and the three EI-22 Interface connectors are located in the connector coffin. Details concerning these items are given in the O & M manual Sections 6 and 7.

1.2.2 Remote Meters Connectors

The remote meters interface, BF-46, (item 31, Figure 2) and the two meter connectors, **SONY METERS** and **EXTERNAL METERS**, are also housed in the connector coffin.

The **SONY METERS** connector is reserved exclusively for a Sony MXBK-VU29 or MXBK-PK29 Meter Unit. Any compatible balanced metering facility can be connected to the EXTERNAL METERS connector.

If the **EXTERNAL METERS** connector is used instead of the **SONY METERS** connector, the tally assembly (a supplied accessory, see Table 4) **MUST** be connected to the **SONY METERS** connector. The tally assembly completes signal paths to the **REH** and **ON AIR** indicators at the console's Master Module. This ensures visual indication of these functions at the console, replacing functions that would be otherwise performed by similar indicators on a Sony meter unit.

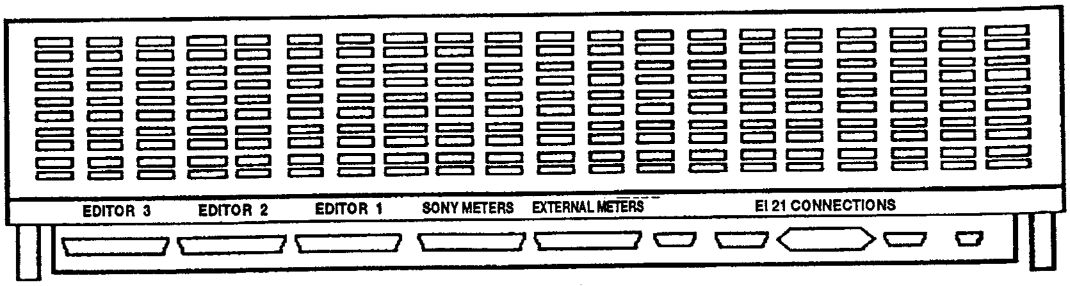


Figure 1. MXP-2916F Rear View

1.3 METER INTERFACE SPECIFICATIONS

1.3.1 EXTERNAL METERS Output

Drive current capability	greater than 600 ohms
Output impedance (balanced not cross coupled)	less than 120 ohms
Maximum cable length drive	6.1 m (20 ft)
Output level range (+4 dBu reference)	-2 dBu to 11 dBu
Frequency response	
30 Hz to 20 kHz	±0.5 dB
20 Hz to 20 kHz	±1.5 dB
Harmonic distortion (channel line output)	less than 0.1% (+12 dBu at 1.0 kHz, THD+N)
Noise level at 2-Mix (setup for unity)	
MXP-2916F	
Master Fader Off	90 dBu
Channel Fader Off	84 dBu
Fader at reference level, all other faders off (1 channel assigned to 2-Mix, hard panned left or right)	better than -82 dBu
MXP-2926F	
Master Fader Off	-90 dBu
Channel Fader Off	-83 dBu
Fader at reference level, all other faders off (1 channel assigned to 2-Mix, hard panned left or right)	better than -81 dBu
MXP-2936F	
Master Fader Off	-90 dBu
Channel Fader Off	-82 dBu
Fader at reference level, all other faders off (1 channel assigned to 2-Mix, hard panned left or right)	better than -80 dBu

1.3.2 SONY METERS Output

Drive current capability	greater than 2 kohms
Output level	
0 VU	+4 dBu
5 PEAK	+4 dBu
Maximum cable length drive	6.1 m (20 ft)
Output impedance	less than 120 ohms
Frequency response	
30 Hz to 20 kHz	±0.5 dB
20 Hz to 20 kHz	±1.5 dB
Harmonic distortion (channel line output)	less than 0.1% (+12 dBu at 1.0 kHz, THD+N)
Noise level at 2-Mix (setup for unity)	
MXP-2916F	
Master Fader Off	-90 dBu
Channel Fader Off	-84 dBu
Fader at reference level, all other faders off (1 channel assigned to 2-Mix, hard panned left or right)	better than -82 dBu
MXP-2926F	
Master Fader Off	-90 dBu
Channel Fader Off	-83 dBu
Fader at reference level, all other faders off (1 channel assigned to 2-Mix, hard panned left or right)	better than -81 dBu
MXP-2936F	
Master Fader Off	-90 dBu
Channel Fader Off	-82 dBu
Fader at reference level, all other faders off (1 channel assigned to 2-Mix, hard panned left or right)	better than -80 dBu

2.0 INSTALLATION

Other than the additional task of connecting a remote meter unit to the console, all installation data discussed in the O & M manual also pertains to **MXP-2916F/ 2926F/2936F** consoles.

2.1 SONY METER UNIT CONNECT

The 50 pin D-Sub female **SONY METERS** connector is provided for exclusive use with an **MXBK-VU29** or **MXBK-PK29** Sony Meter Unit. The ESM harness, a 5.8 meter (19 ft) long, 50 conductor, flat interconnecting cable is supplied with the meter unit. Pin assignments for the **SONY METERS** connector are given in Table 2. Refer to the MXBK-VU29 VU Meter Unit and MXBK-PK29 Peak Meter Unit Operation and Maintenance Manual, Sony part number T-9456-484-1, for details.

PIN	SIGNAL	PIN	SIGNAL
1	6V A	26	ON AIR
2	6V A	27	STUDIO LOUD SPEAKER
3	6V A	28	CONTROL ROOM LOUDSPEAKER
4	6V A	29	+5V DC
5	CENTER TAP	30	+5V DC
6	CENTER TAP	31	+5V REF DC
7	NOT USED	32	+5V REF DC
8	NOT USED	33	-18V DC
9	NOT USED	34	-18V DC
10	NOT USED	35	+18V DC
11	GROUP 2 METER	36	+18V DC
12	GROUP 1 METER	37	DIGITAL GROUND
13	GROUP 4 METER	38	DIGITAL GROUND
14	GROUP 3 METER	39	ANALOG GROUND
15	LEFT METER	40	ANALOG GROUND
16	LEFT METER	41	CLOCK GROUND
17	SEND 1 RIGHT METER	42	NOT USED
18	SEND 1 LEFT METER	43	NOT USED
19	SEND 3	44	NOT USED
20	SEND 2	45	NOT USED
21	TALK BACK AUDIO	46	NOT USED
22	PFL METER	47	NOT USED
23	REHEARSE	48	NOT USED
24	TALK BACK CALLING	49	NOT USED
25	PFL	50	CLOCK GROUND

Table 2. SONY METERS Connector Pin Assignments

2.2 CONNECTING A NON-SONY METER UNIT

The 50 pin D-Sub female **EXTERNAL METERS** connector is used for connection with a remote balanced meter unit other than a **MXBK-VU29** or a **MXBK-PK29** Sony meter unit.

IMPORTANT - The tally assembly must be connected to the **SONY METERS** connector. The tally assembly is a supplied accessory.

A cable must be fabricated to connect the user's meter unit to the console. The **EXTERNAL METERS** mating connector, is a supplied accessory. The connector to be used at the opposite end of the cable is determined by the user's meter unit configuration.

Signal pin assignments for the **EXTERNAL METERS** connector are given in Table 3. The interconnect cable must not exceed 5.8 meter (19 ft) in length.

PIN	SIGNAL	PIN	SIGNAL
1	SEND 1 LEFT HI METER	26	GROUP 3 LO METER
2	SEND 1 LEFT LO METER	27	GROUP 3 SHIELD
3	SEND 1 LEFT SHIELD	28	GROUP 4 HI METER
4	SEND 1 RIGHT HI METER	29	GROUP 4 LO METER
5	SEND 1 RIGHT LO METER	30	GROUP 4 SHIELD
6	SEND 1 RIGHT SHIELD	31	PFL HI METER
7	SEND 2 HI METER	32	PFL LO METER
8	SEND 2 LO METER	33	PFL SHIELD
9	SEND 2 SHIELD	34	TALK BACK AUDIO
10	SEND 3 HI METER	35	REHEARSE
11	SEND 3 LO METER	36	TALK BACK CALLING
12	SEND 3 SHIELD	37	PFL
13	RIGHT METER HI	38	ON AIR
14	RIGHT METER LO	39	STUDIO LOUD SPEAKER
15	RIGHT METER SHIELD	40	CONTROL ROOM LOUD SPEAKER
16	LEFT METER HI	41	NOT USED
17	LEFT METER LO	42	NOT USED
18	LEFT METER SHIELD	43	NOT USED
19	GROUP 1 HI METER	44	NOT USED
20	GROUP 1 LO METER	45	NOT USED
21	GROUP 1 SHIELD	46	NOT USED
22	GROUP 2 HI METER	47	ANALOG GROUND
23	GROUP 2 LO METER	48	ANALOG GROUND
24	GROUP 2 SHIELD	49	ANALOG GROUND
25	GROUP 3 HI METER	50	ANALOG GROUND

Table 3. EXTERNAL METERS Connector Pin Assignments

3.0 REPLACEABLE PARTS

For replaceable parts, refer to:

Table 4.	Supplied Accessories
Table 5.	Button Kits and Buttons
Figure 2.	MXP-2916F/26F/36F Frame Exploded View and Parts List
Figure 3.	Motherboards and Cables
Figure 4	BF-46 Schematic and Parts List

All parts listed are authorized Sony parts and are compiled from the most recent Sony standard parts data available at the time of publication.

Service codes are assigned to all parts. The codes appear in the **Serv. Code** column of the parts list:

S - This part is stocked at Sony Parts Center and is readily available.

O - This part may not be in stock. An order for this part will be accepted, but delivery is subject to long lead-time.

U - This item is not a replaceable part. It appears in the parts list for reference only.

Serv Code	Part No.	Description
S	T-9486-171-A	TALLY ASSEMBLY
S	T-9413-620-1	MINI LAMP SIFAM-6V
O	T-9452-015-1	TOOL, KNOB FOR 15MM
O	T-9452-552-1	11MM KNOB FIXING TOOL
O	T-9453-329-1	HEX DRIVER, 1/16"
O	T-9453-330-1	HEX DRIVER, 5/64"
S	T-9453-424-1	FLAT CNTRSNK HD SCREW (MXP-2916 ONLY)
S	T-9453-536-1	ALLEN SKT HD CAP SCREW (MXP-2916 ONLY)
O	T-9454-328-1	PANEL, BOTTOM (MXP-2916 & MXP-2936 ONLY)
O	T-9454-330-1	PANEL, BOTTOM, 36 (MXP-2936 ONLY)
O	T-9454-329-1	PANEL, BOTTOM, 26 (MXP-2926 ONLY)
S	T-9481-178-1	T HANDLE ASM MODULE EXTRACTOR
O	T-9482-416-2	EXTENDER CARD ASSY TYPE2
O	T-9486-072-A	METER HSING PLEX ASSY
O	1-565-413-11	RECEPTACLE, CONN 2P
S	7-623-954-41	WASHER 3, FIBER
S	7-682-548-09	SCREW +B 3X8 (MXP-2916 & MXP-2936 ONLY)
S	7-682-948-01	SCREW +PSW 3X8 (MXP-2916 & MXP-2936 ONLY)

Table 4. Accessories Supplied

KITS
(Service Code O)

T-9486-032-A	MXP-2916
T-9486-033-A	MXP-2916
T-9486-034-A	MXP-2936

BUTTONS
(Service Code S)

T-9453-151-1	(1)
T-9453-152-1	(2)
T-9453-153-1	(3)
T-9453-154-1	(4)
T-9453-155-1	(5)
T-9453-156-1	(6)
T-9453-157-1	(7)
T-9453-158-1	(8)
T-9453-159-1	(9)
T-9453-160-1	(10)
T-9453-161-1	(11)
T-9453-162-1	(12)
T-9453-171-1	GP (1)
T-9453-172-1	GP (2)
T-9453-173-1	GP (3)
T-9453-174-1	GP (4)
T-9453-163-1	(13)
T-9453-164-1	(14)
T-9453-165-1	(15)
T-9453-166-1	(16)
T-9453-617-1	(17)
T-9453-618-1	(18)
T-9453-619-1	(19)
T-9453-620-1	(20)
T-9453-621-1	(21)
T-9453-622-1	(22)
T-9453-623-1	(23)
T-9453-624-1	(24)
T-9453-625-1	(25)
T-9453-626-1	(26)
T-9453-627-1	(27)
T-9453-628-1	(28)
T-9453-629-1	(29)
T-9453-630-1	(30)
T-9453-631-1	(31)
T-9453-632-1	(32)

Table 5. Button Kits And Button

MXP-2900F SERIES
FRAME
1 OF 2

Item No.	Serv Code	Part No.	Description
1	O	T-9453-898-1	CABLE CLAMP, FLAT RIBBON
2	O	T-9456-013-1	GROMMET STRIP (NGS-3)
3	O	T-9456-088-1	LOWER LEFT COSMETIC PANEL
4	O	T-9456-089-1	LOWER RIGHT COSMETIC PANEL
5	O	T-9456-095-1	UPPER LEFT COSMETIC PANEL
6	O	T-9456-096-1	UPPER RIGHT COSMETIC PANEL
7	O	T-9456-195-1	ARMREST, MODULAR
8	O	T-9482-336-2	ECA CBL ASSY (USED ON MXP-2916F)
		T-9482-866-1	ECA3 CBL ASSY (USED ON MXP-2926F)
		T-9482-496-2	ECA2 CABLE ASSY (USED ON MXP-2936F)
9	O	T-9481-977-4	MHU CABLE ASSY (USED ON MXP-2916F)
		T-9482-868-1	MHU3 CBL ASSY (USED ON MXP-2926F)
		T-9482-498-2	MHU2 CABLE ASSY (USED ON MXP-2936F)
10	O	T-9482-339-2	DVA CABLE ASSY (USED ON MXP-2916F)
		T-9482-867-2	DVA3 CBL ASSY (USED ON MXP-2926F)
		T-9482-497-2	DVA2 CABLE ASSY (USED ON MXP-2936F)
11	S	3-642-656-01	FOOT
12	O	3-673-676-01	RAIL, GUIDE, CHASSIS
13	O	3-711-186-02	SPACER FOOT
14	S	7-682-187-09	SCREW, +P 6 X 10
15	S	7-682-570-02	SCREW, +B 4 X 40

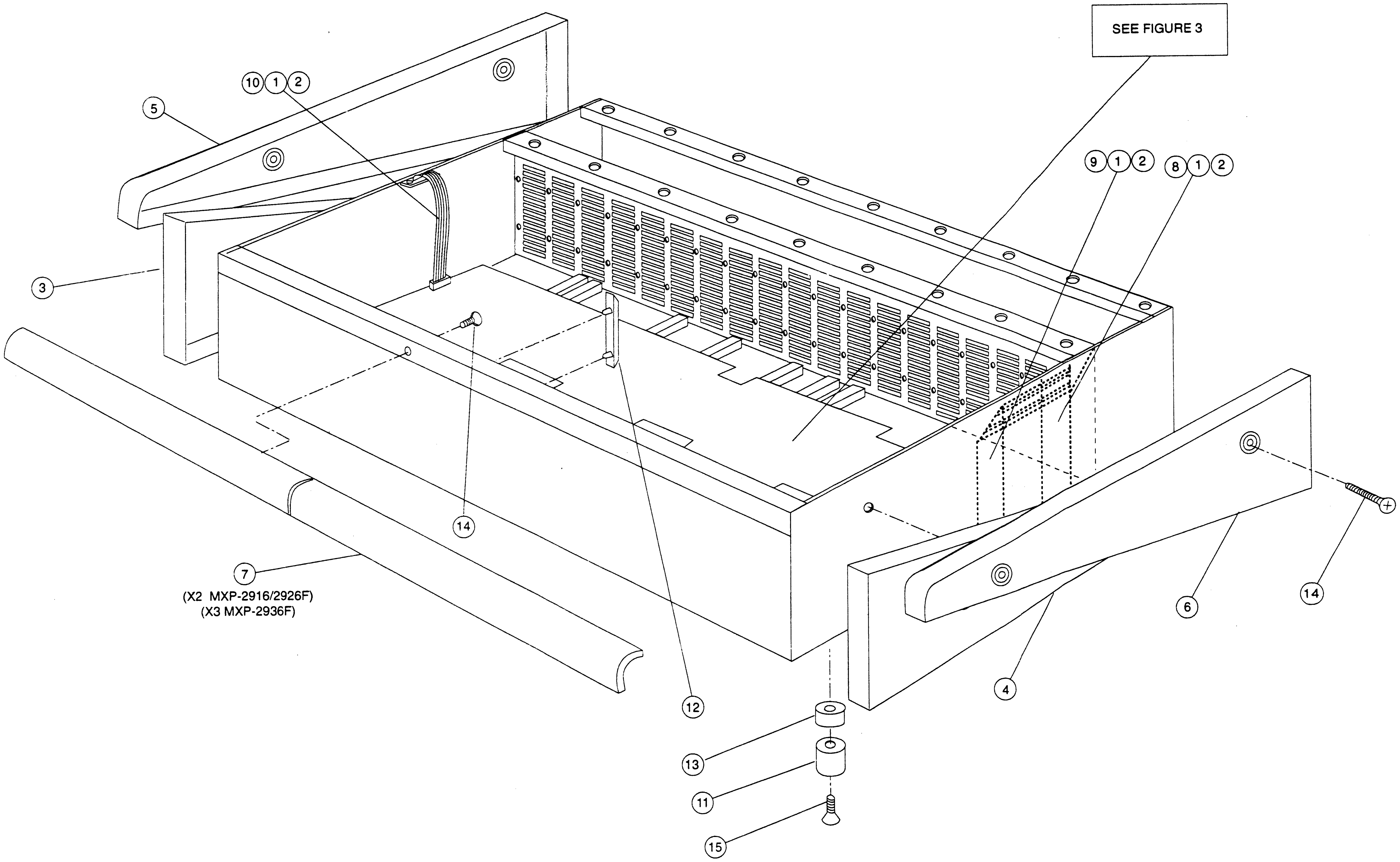
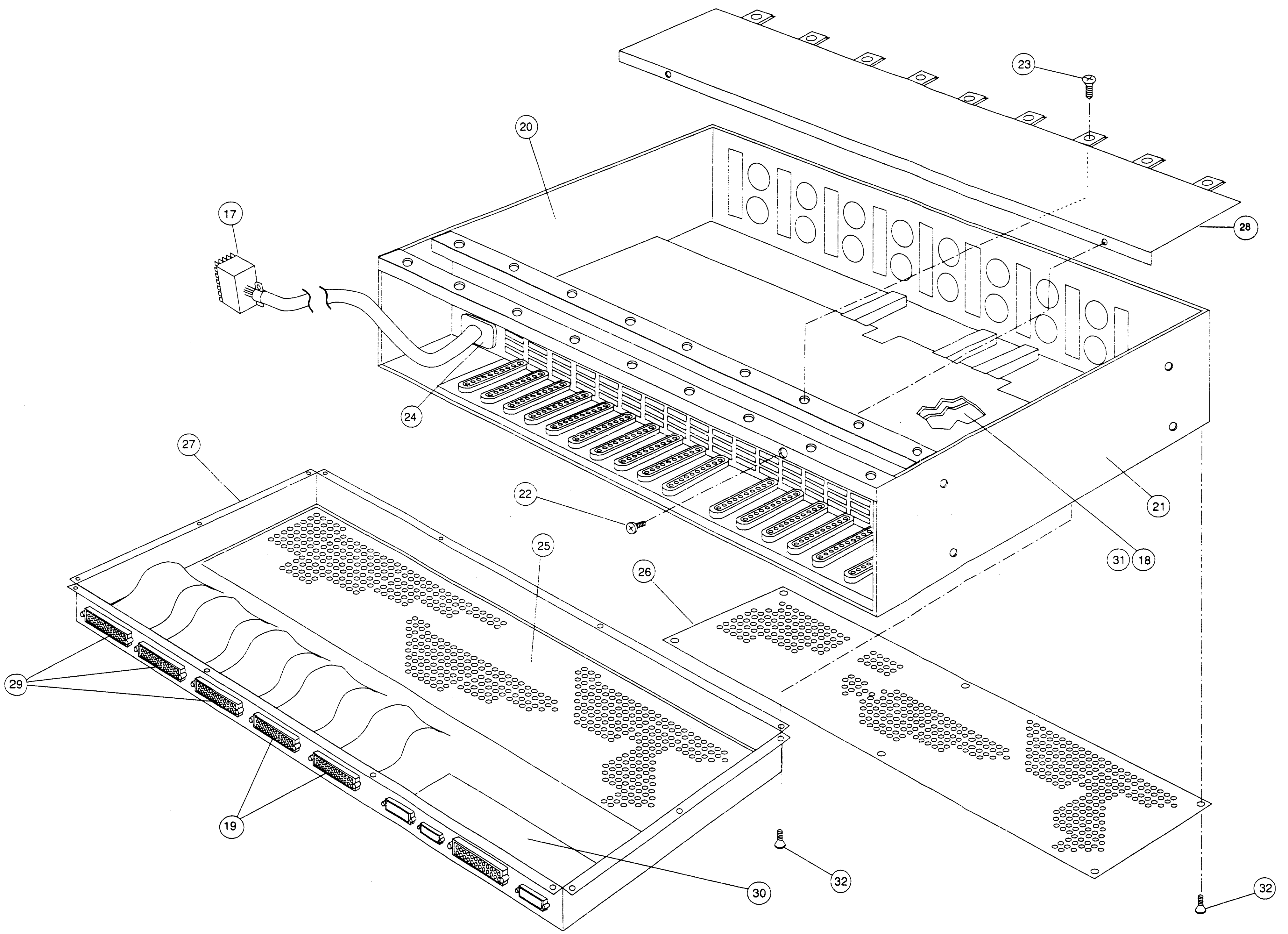


Figure 2. MXP-2916F/26F/36F Frame
Exploded View and Parts List (Sheet 1 of 2)

MXP-2900F SERIES
FRAME
2 OF 2

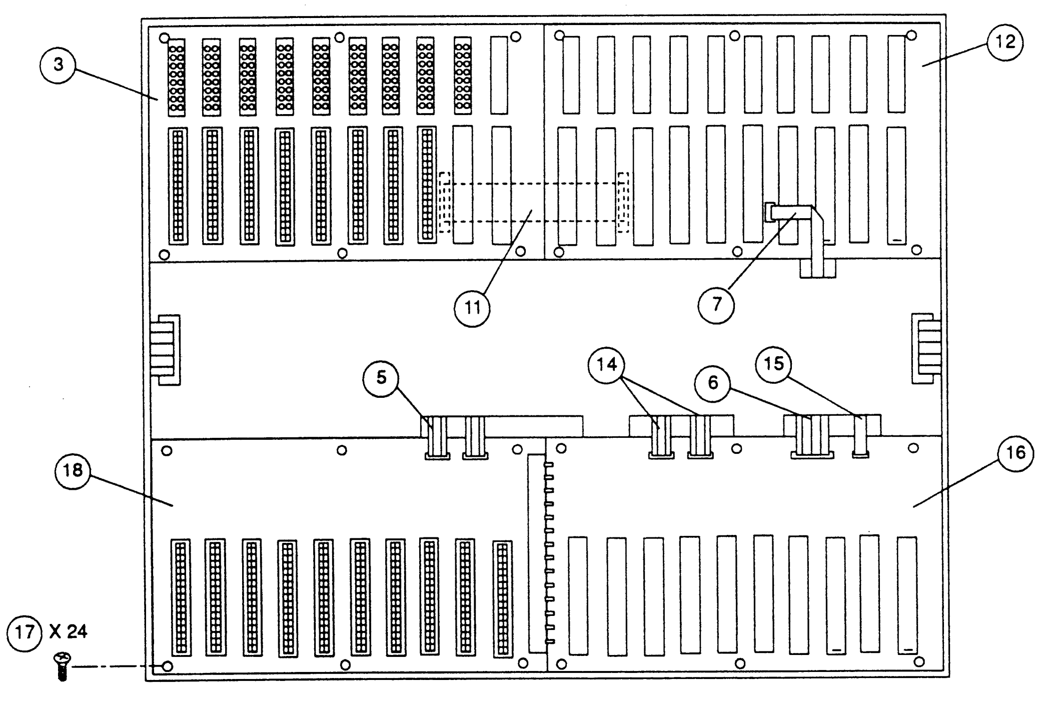


Item No.	Serv Code	Part No.	Description
17	O	T-9416-047-2	HARNESS (PWR CBC ASSY)
18	O	T-9416-468-1	HARNESS (ING)
19	O	T-9416-469-1	HARNESS (RMH)
20	O	T-9452-926-5	RIGHT SIDE PLATE
21	O	T-9452-927-4	LEFT SIDE PLATE
22	S	T-9452-960-1	FLAT HEAD ALLEN CAP SCREW
23	S	T-9453-127-1	SCREW, BT HD 6-32 X 1/4
24	O	T-9453-856-1	STRAIN RELEF
25	O	T-9454-478-1	UPPER BOTTOM PANEL 36 (USED ON MXP-2916F, MXP-2936F)
	O	T-9454-474-1	UPPER BOTTOM PANEL 26 (USED ON MXP-2926F)
26	O	T-9454-479-1	LOWER BOTTOM PANEL 36 (USED ON MXP-2916F, MXP-2936F)
	O	T-9454-475-1	LOWER BOTTOM PANEL 26 (USED ON MXP-2926F)
27	O	T-9456-477-1	REMOTE CONNECTOR COFFIN
28	O	T-9456-480-1	REAR TOP PLATE (USED ON MXP-2916F)
	O	T-9456-476-1	REAR TOP PLATE 26 (USED ON MXP-2926F)
	O	T-9456-473-1	REAR TOP PLATE 36 (USED ON MXP-2936F)
29	O	T-9483-755-3	HARNESS (NIFJ11-DSUB50)
30	O	T-9486-090-A	PWA AEB
31	O	T-9486-152-A	BF-46 COMPL-NC (SEE FIGURE 4)
32	S	7-682-947-01	SCREW, +PSW 3x6

Figure 2. MXP-2916F/26F/36F Frame Exploded View and Parts List (Sheet 2 of 2)

MOTHER BOARDS AND CABLES

MXP - 2916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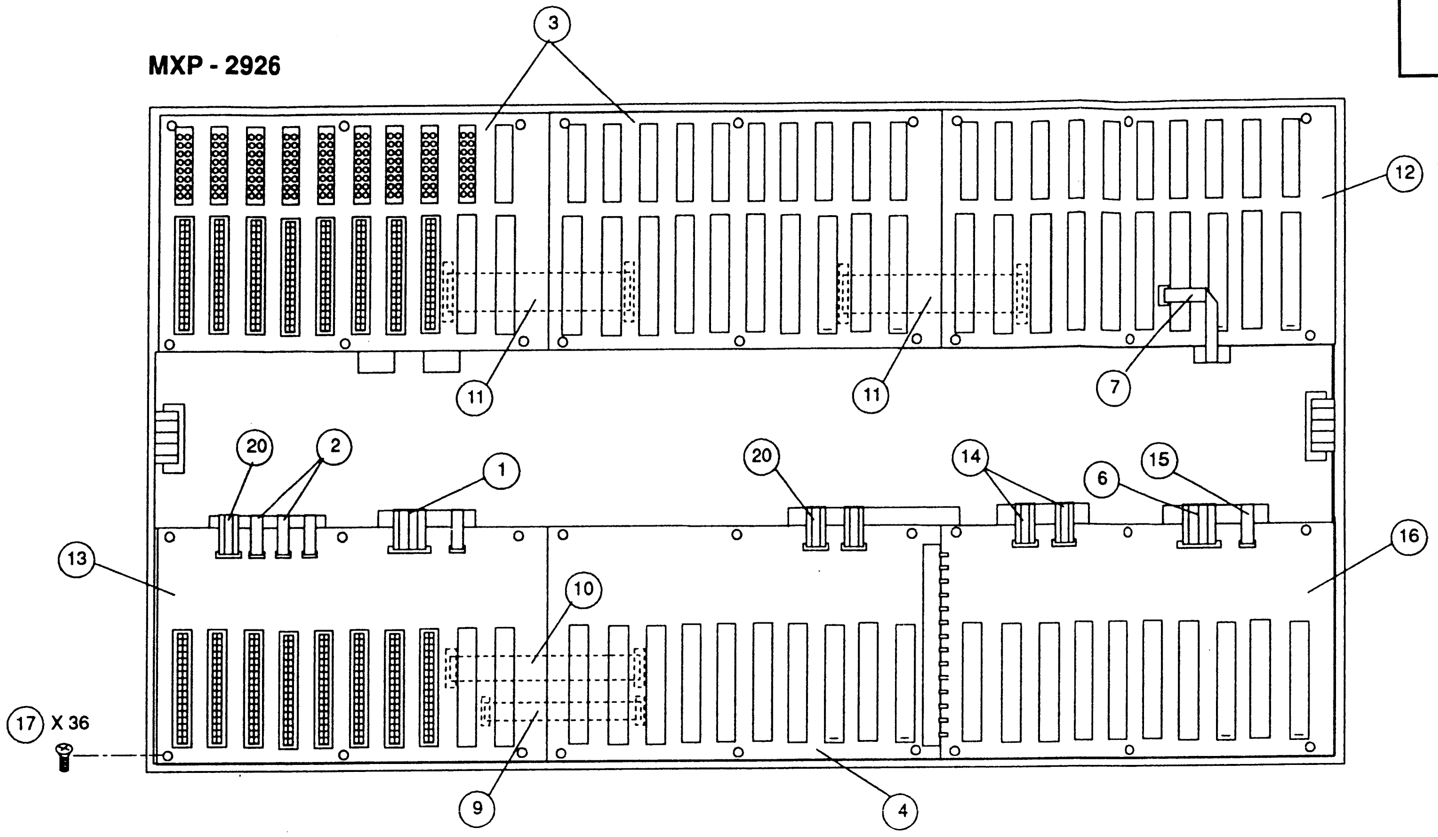
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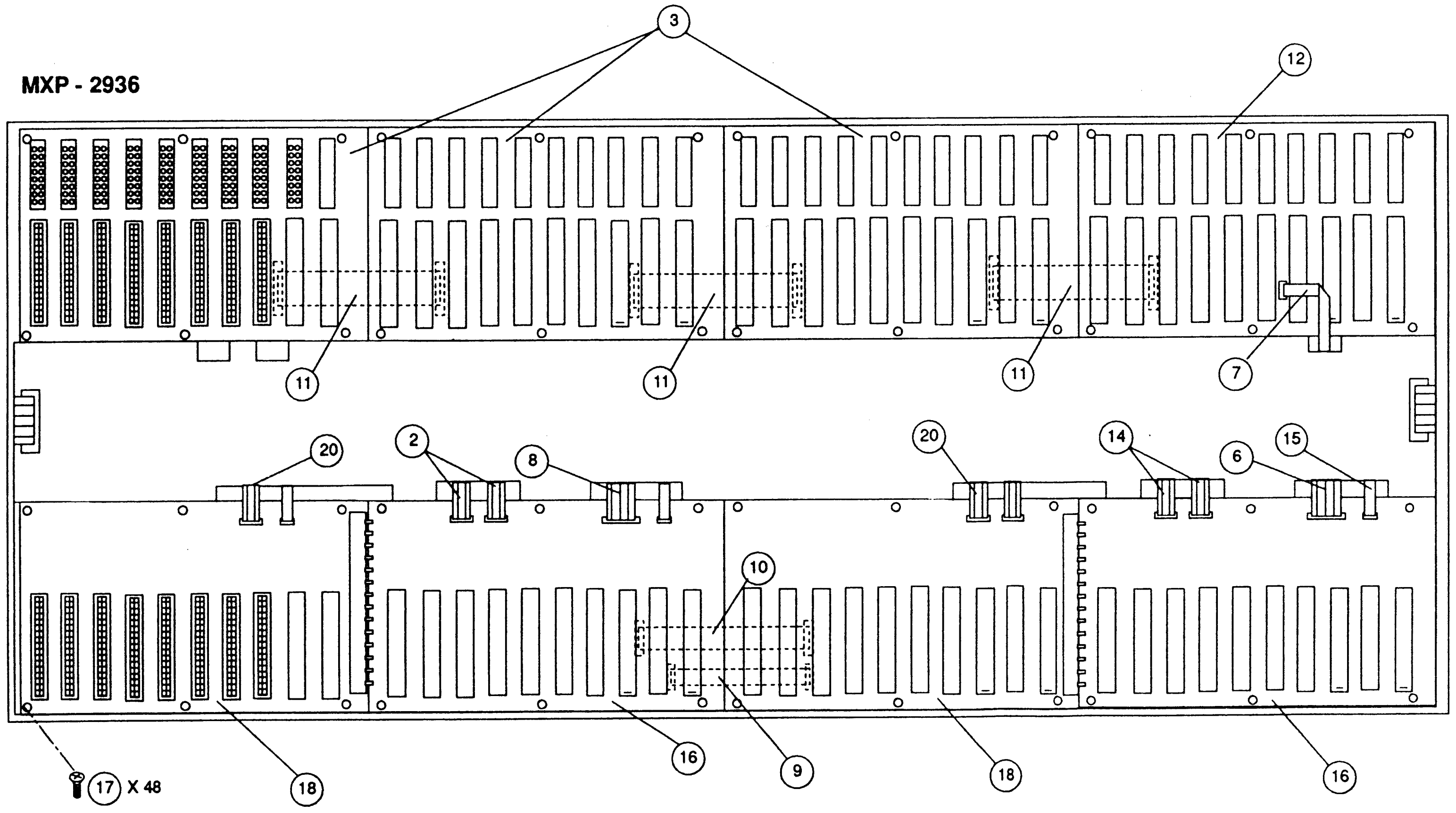
7
20
2
1
20
14
6
15
13
16
10
17 X 36
9
4

MXP - 2936


3
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17 X 48
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16

Item No.	SP	Part No.	Description
1	O	T-9416-042-1	HARNESS (NIFJ1 CBL)
2	O	T-9416-043-1	HARNESS (NIFJ3+4CBL)
3	O	T-9481-881-1	PWA, AMB
4	O	T-9481-882-1	PWA, BMB
5	O	T-9481-979-3	HARNESS (ABC CBL ASSY)
6	O	T-9482-335-2	HARNESS (EFC CBL ASSY)
7	O	T-9482-338-2	HARNESS (EPC CBL ASSY)
8	O	T-9482-769-1	EFC2 CBL ASSY
9	O	T-9482-875-1	MBJ50 CBL ASSY
10	O	T-9482-876-1	MBJ16 CBL ASSY
11	O	T-9482-879-3	MBJ40 CBL ASSY
12	O	T-9482-881-1	PWA, AMC
13	O	T-9483-006-2	PWA, TML
14	O	T-9483-751-2	HARNESS (NIFJ5-TMLJ4)
15	O	T-9483-753-2	HARNESS (NIFJ7-TMLJ6)
16	O	T-9486-067-A	PWA MBC
17	S	7-682-947-01	SCREW, +PSW 3x6

Figure 3. Motherboards and Cables

BF-46

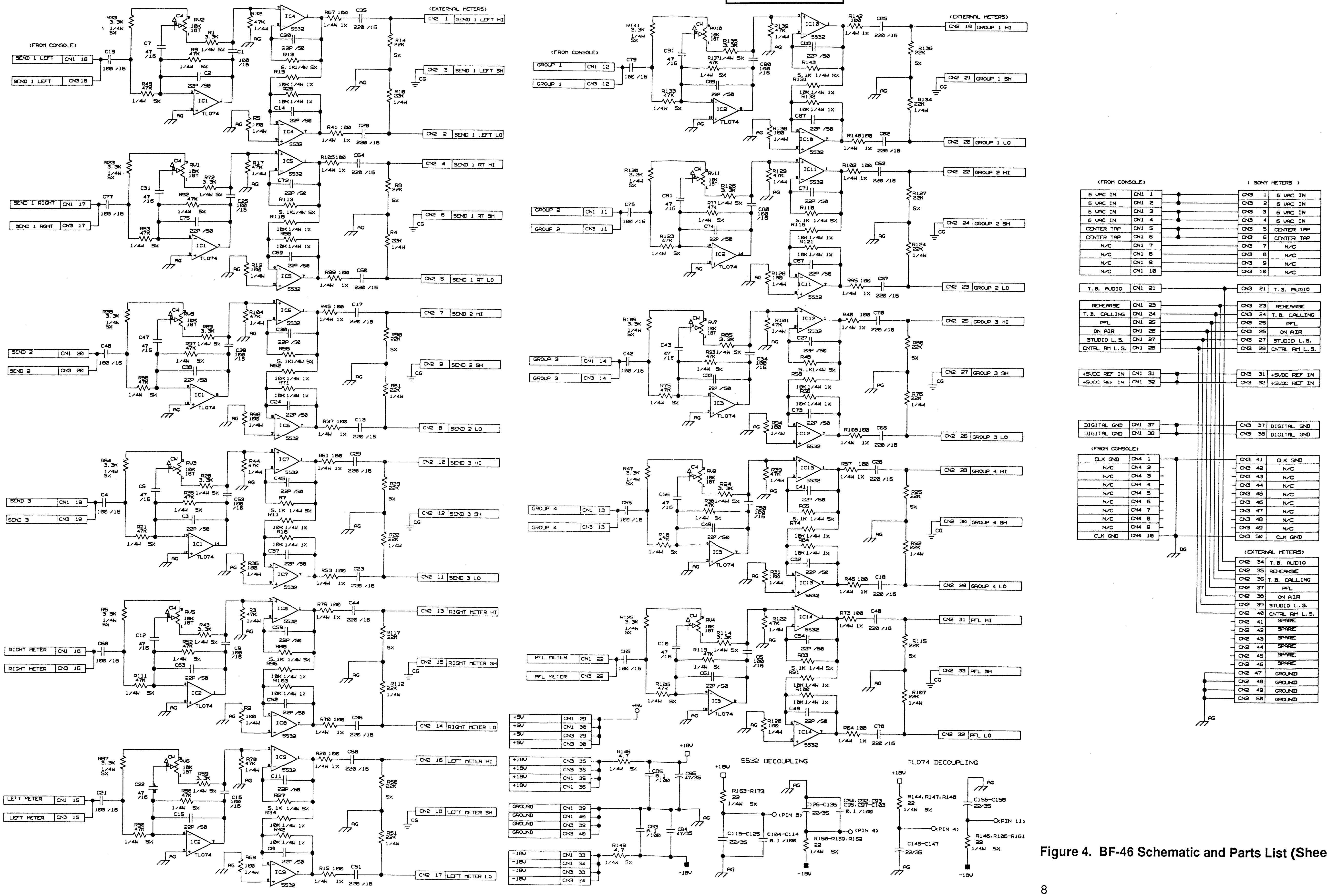
(FROM CONSOLE)
(EXTERNAL METERS)
SEND 1 LEFT
CN2 1 SEND 1 LEFT HI
CN2 3 SEND 1 LEFT SH
CN2 2 SEND 1 LEFT LO
SEND 1 RIGHT
CN2 4 SEND 1 RT HI
CN2 6 SEND 1 RT SH
CN2 5 SEND 1 RT LO
SEND 2
CN2 7 SEND 2 HI
CN2 9 SEND 2 SH
CN2 8 SEND 2 LO
SEND 3
CN2 10 SEND 3 HI
CN2 12 SEND 3 SH
CN2 11 SEND 3 LO
RIGHT METER
CN2 13 RIGHT METER HI
CN2 15 RIGHT METER SH
CN2 14 RIGHT METER LO
LEFT METER
CN2 16 LEFT METER HI
CN2 18 LEFT METER SH
CN2 17 LEFT METER LO
GROUP 1
CN2 19 GROUP 1 HI
CN2 21 GROUP 1 SH
CN2 20 GROUP 1 LO
GROUP 2
CN2 22 GROUP 2 HI
CN2 24 GROUP 2 SH
CN2 23 GROUP 2 LO
GROUP 3
CN2 25 GROUP 3 HI
CN2 27 GROUP 3 SH
CN2 26 GROUP 3 LO
GROUP 4
CN2 28 GROUP 4 HI
CN2 30 GROUP 4 SH
CN2 29 GROUP 4 LO
PFL METER
CN2 31 PFL HI
CN2 33 PFL SH
CN2 32 PFL LO
5532
TL074
5532 DECOUPLING
TL074 DECOUPLING
(SONY METERS)
6 VAC IN
CENTER TAP
N/C
T.B. AUDIO
REHEARSE
T.B. CALLING
PFL
ON AIR
STUDIO L.S.
CNTRL RM L.S.
+5VDC REF IN
DIGITAL GND
CLK GND
SPARE
GROUND
AG
DG
CG

Figure 4. BF-46 Schematic and Parts List (Sheet 1 of 3)

Ref. No.	Parts No.	Serv Code	Decription			
-	T-9486-152-A	O	BF-46 CMPL			
(This assembly includes the following parts.)						
-	1-526-652-21	S	SOCKET, IC (DP) 8P			
-	1-526-653-21	S	SOCKET, IC (DP) 14P			
C1	1-124-013-51	S	CAP, ELECT	100	20%	16V
C2	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C3	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C4	1-124-013-51	S	CAP, ELECT	100	20%	16V
C5	1-124-631-51	S	CAP, ELECT	47	20%	16V
C6	1-124-013-51	S	CAP, ELECT	100	20%	16V
C7	1-124-631-51	S	CAP, ELECT	47	20%	16V
C8	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C9	1-124-013-51	S	CAP, ELECT	100	20%	16V
C10	1-124-631-51	S	CAP, ELECT	47	20%	16V
C11	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C12	1-124-631-51	S	CAP, ELECT	47	20%	16V
C13	1-124-014-51	S	CAP, ELECT	220	20%	16V
C14	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C15	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C16	1-124-013-51	S	CAP, ELECT	100	20%	16V
C17	1-124-014-51	S	CAP, ELECT	220	20%	16V
C18	1-124-014-51	S	CAP, ELECT	220	20%	16V
C19	1-124-013-51	S	CAP, ELECT	100	20%	16V
C20	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C21	1-124-013-51	S	CAP, ELECT	100	20%	16V
C22	1-124-631-51	S	CAP, ELECT	47	20%	16V
C23	1-124-014-51	S	CAP, ELECT	220	20%	16V
C24	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C25	1-124-013-51	S	CAP, ELECT	100	20%	16V
C26	1-124-014-51	S	CAP, ELECT	220	20%	16V
C27	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C28	1-124-014-51	S	CAP, ELECT	220	20%	16V
C29	1-124-014-51	S	CAP, ELECT	220	20%	16V
C30	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C31	1-124-631-51	S	CAP, ELECT	47	20%	16V
C32	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C33	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C34	1-124-013-51	S	CAP, ELECT	100	20%	16V
C35	1-124-014-51	S	CAP, ELECT	220	20%	16V
C36	1-124-014-51	S	CAP, ELECT	220	20%	16V
C37	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C38	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C39	1-124-013-51	S	CAP, ELECT	100	20%	16V
C40	1-124-014-51	S	CAP, ELECT	220	20%	16V
C41	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C42	1-124-013-51	S	CAP, ELECT	100	20%	16V
C43	1-124-631-51	S	CAP, ELECT	47	20%	16V
C44	1-124-014-51	S	CAP, ELECT	220	20%	16V
C45	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C46	1-124-013-51	S	CAP, ELECT	100	20%	16V
C47	1-124-631-51	S	CAP, ELECT	47	20%	16V
C48	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C49	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C50	1-124-013-51	S	CAP, ELECT	100	20%	16V
C51	1-124-014-51	S	CAP, ELECT	220	20%	16V
C52	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C53	1-124-013-51	S	CAP, ELECT	100	20%	16V
C54	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C55	1-124-013-51	S	CAP, ELECT	100	20%	16V
C56	1-124-631-51	S	CAP, ELECT	47	20%	16V
C57	1-124-014-51	S	CAP, ELECT	220	20%	16V
C58	1-124-014-51	S	CAP, ELECT	220	20%	16V
C59	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C60	1-124-014-51	S	CAP, ELECT	220	20%	16V
C61	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C62	1-124-014-51	S	CAP, ELECT	220	20%	16V
C63	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C64	1-124-014-51	S	CAP, ELECT	220	20%	16V
C65	1-124-013-51	S	CAP, ELECT	100	20%	16V
C66	1-124-014-51	S	CAP, ELECT	220	20%	16V
C67	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C68	1-124-013-51	S	CAP, ELECT	100	20%	16V
C69	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C70	1-124-014-51	S	CAP, ELECT	220	20%	16V
C71 to C75	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C76	1-124-013-51	S	CAP, ELECT	100	20%	16V
C77	1-124-013-51	S	CAP, ELECT	100	20%	16V
C78	1-124-014-51	S	CAP, ELECT	220	20%	16V
C79	1-124-013-51	S	CAP, ELECT	100	20%	16V
C80	1-124-013-51	S	CAP, ELECT	100	20%	16V
C81	1-124-631-51	S	CAP, ELECT	47	20%	16V
C82	1-124-014-51	S	CAP, ELECT	220	20%	16V
C83	T-9411-323-1	S	CAP, CERAMIC	0.1	20%	1OOV
C84	T-9411-323-1	S	CAP, CERAMIC	0.1	20%	1OOV
C85	1-124-014-51	S	CAP, ELECT	220	20%	16V
C86	T-9411-323-1	S	CAP, CERAMIC	0.1	20%	1OOV
C87 to C89	1-102-959-91	S	CAP, CERAMIC	22PF	5%	50V
C90	1-124-013-51	S	CAP, ELECT	100	20%	16V
C91	1-124-631-51	S	CAP, ELECT	47	20%	16V
C92	T-9411-323-1	S	CAP, CERAMIC	0.1	20%	1OOV
C93	T-9411-323-1	S	CAP, CERAMIC	0.1	20%	1OOV
C94	1-124-248-61	S	CAP, ELECT	22	20%	35V
C95	T-9411-323-1	S	CAP, CERAMIC	0.1	20%	1OOV
C96	1-124-248-61	S	CAP, ELECT	22	20%	35V
C97 to C114	T-9411-323-1	S	CAP, CERAMIC	0.1	20%	1OOV
C115 to C136	1-124-248-61	S	CAP, ELECT	22	20%	35V
C145 to C147	1-124-248-61	S	CAP, ELECT	22	20%	35V
C156 to C158	1-124-248-61	S	CAP, ELECT	22	20%	35V
CN1	T-9416-428-1	O	CONNECTOR 40P			
CN2	1-580-711-11	O	CONNECTOR (RIBBON CABLE) 50P			
CN3	1-580-711-11	O	CONNECTOR (RIBBON CABLE) 50P			
CN4	1-564-490-11	S	PIN, CONNECTOR 10P			
IC1 to IC3	8-759-990-04	S	TL072CN			
IC4 to IC14	8-759-900-72	S	IC NE5532P			
R1	1-247-843-91	S	RES, CARBON	3.3K	5%	1/4W
R2	1-247-807-91	S	RES, CARBON	100	5%	1/4W
R3	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R4	1-247-863-91	S	RES, CARBON	22K	5%	1/4W
R5	1-247-807-91	S	RES, CARBON	100	5%	1/4W
R6	1-247-843-91	S	RES, CARBON	3.3K	5%	1/4W
R7	1-215-438-31	S	RES, METAL	5.1K	1%	1/4W
R8	1-247-863-91	S	RES, CARBON	22K	5%	1/4W
R9	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R10	1-247-863-91	S	RES, CARBON	22K	5%	1/4W
R11	1-215-445-91	S	RES, METAL	10K	1%	1/4W
R12	1-247-807-91	S	RES, CARBON	100	5%	1/4W
R13	1-215-438-31	S	RES, METAL	5.1K	1%	1/4W
R14	1-247-863-91	S	RES, CARBON	22K	5%	1/4W
R15	1-215-397-91	S	RES, METAL	100	1%	1/4W
R16	1-215-445-91	S	RES, METAL	10K	1%	1/4W
R17	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R18	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R19	1-215-445-91	S	RES, METAL	10K	1%	1/4W
R20	1-215-397-91	S	RES, METAL	100	1%	1/4W
R21	1-247-871-91	S	RES, CARBON	47K	5%	1/4W

Figure 4. BF-46 Schematic and Parts List (Sheet 2 of 3)

Ref. No.	Parts No.	Serv Code	Decription			
R22	1-247-863-91	S	RES, CARBON	22K	5%	1/4W
R23	1-247-843-91	S	RES, CARBON	3.3K	5%	1/4W
R24	1-247-843-91	S	RES, CARBON	3.3K	5%	1/4W
R25	1-247-863-91	S	RES, CARBON	22K	5%	1/4W
R26	1-215-445-91	S	RES, METAL	10K	1%	1/4W
R27	1-215-438-31	S	RES, METAL	5.1K	1%	1/4W
R28	1-247-843-91	S	RES, CARBON	3.3K	5%	1/4W
R29	1-247-863-91	S	RES, CARBON	22K	5%	1/4W
R30	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R31	1-247-807-91	S	RES, CARBON	100	5%	1/4W
R32	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R33	1-247-843-91	S	RES, CARBON	3.3K	5%	1/4W
R34	1-215-445-91	S	RES, METAL	10K	1%	1/4W
R35	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R36	1-247-807-91	S	RES, CARBON	100	5%	1/4W
R37	1-215-397-91	S	RES, METAL	100	1%	1/4W
R38	1-247-843-91	S	RES, CARBON	3.3K	5%	1/4W
R39	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R40	1-215-397-91	S	RES, METAL	100	1%	1/4W
R41	1-215-397-91	S	RES, METAL	100	1%	1/4W
R42	1-215-445-91	S	RES, METAL	10K	1%	1/4W
R43	1-247-843-91	S	RES, CARBON	3.3K	5%	1/4W
R44	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R45	1-215-397-91	S	RES, METAL	100	1%	1/4W
R46	1-215-397-91	S	RES, METAL	100	1%	1/4W
R47	1-247-843-91	S	RES, CARBON	3.3K	5%	1/4W
R48	1-215-438-31	S	RES, METAL	5.1K	1%	1/4W
R49	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R50	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R51	1-247-863-91	S	RES, CARBON	22K	5%	1/4W
R52	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R53	1-215-397-91	S	RES, METAL	100	1%	1/4W
R54	1-247-843-91	S	RES, CARBON	3.3K	5%	1/4W
R55	1-215-438-31	S	RES, METAL	5.1K	1%	1/4W
R56	1-215-445-91	S	RES, METAL	10K	1%	1/4W
R57	1-215-397-91	S	RES, METAL	100	1%	1/4W
R58	1-215-445-91	S	RES, METAL	10K	1%	1/4W
R59	1-247-843-91	S	RES, CARBON	3.3K	5%	1/4W
R60	1-247-863-91	S	RES, CARBON	22K	5%	1/4W
R61	1-215-397-91	S	RES, METAL	100	1%	1/4W
R62	1-215-445-91	S	RES, METAL	10K	1%	1/4W
R63	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R64	1-215-397-91	S	RES, METAL	100	1%	1/4W
R65	1-215-438-31	S	RES, METAL	5.1K	1%	1/4W
R66	1-215-445-91	S	RES, METAL	10K	1%	1/4W
R67	1-215-397-91	S	RES, METAL	100	1%	1/4W
R68	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R69	1-247-807-91	S	RES, CARBON	100	5%	1/4W
R70	1-215-397-91	S	RES, METAL	100	1%	1/4W
R71	1-215-445-91	S	RES, METAL	10K	1%	1/4W
R72	1-247-843-91	S	RES, CARBON	3.3K	5%	1/4W
R73	1-215-397-91	S	RES, METAL	100	1%	1/4W
R74	1-215-445-91	S	RES, METAL	10K	1%	1/4W
R75	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R76	1-247-863-91	S	RES, CARBON	22K	5%	1/4W
R77	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R78	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R79	1-215-397-91	S	RES, METAL	100	1%	1/4W
R80	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R81	1-247-863-91	S	RES, CARBON	22K	5%	1/4W
R82	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R83	1-215-438-31	S	RES, METAL	5.1K	1%	1/4W
R84	1-215-445-91	S	RES, METAL	10K	1%	1/4W
R85	1-247-843-91	S	RES, CARBON	3.3K	5%	1/4W
R86	1-247-863-91	S	RES, CARBON	22K	5%	1/4W
R87	1-247-843-91	S	RES, CARBON	3.3K	5%	1/4W
R88	1-215-438-31	S	RES, METAL	5.1K	1%	1/4W
R89	1-247-843-91	S	RES, CARBON	3.3K	5%	1/4W
R90	1-247-863-91	S	RES, CARBON	22K	5%	1/4W
R91	1-215-445-91	S	RES, METAL	10K	1%	1/4W
R92	1-247-863-91	S	RES, CARBON	22K	5%	1/4W
R93	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R94	1-247-807-91	S	RES, CARBON	100	5%	1/4W
R95	1-215-397-91	S	RES, METAL	100	1%	1/4W
R96	1-215-445-91	S	RES, METAL	10K	1%	1/4W
R97	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R98	1-247-807-91	S	RES, CARBON	100	5%	1/4W
R99	1-215-397-91	S	RES, METAL	100	1%	1/4W
R100	1-215-445-91	S	RES, METAL	10K	1%	1/4W
R101	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R102	1-215-397-91	S	RES, METAL	100	1%	1/4W
R103	1-215-445-91	S	RES, METAL	10K	1%	1/4W
R104	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R105	1-215-397-91	S	RES, METAL	100	1%	1/4W
R106	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R107	1-247-863-91	S	RES, CARBON	22K	5%	1/4W
R108	1-215-397-91	S	RES, METAL	100	1%	1/4W
R109	1-247-843-91	S	RES, CARBON	3.3K	5%	1/4W
R110	1-215-438-31	S	RES, METAL	5.1K	1%	1/4W
R111	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R112	1-247-863-91	S	RES, CARBON	22K	5%	1/4W
R113	1-215-438-31	S	RES, METAL	5.1K	1%	1/4W
R114	1-247-843-91	S	RES, CARBON	3.3K	5%	1/4W
R115	1-247-863-91	S	RES, CARBON	22K	5%	1/4W
R116	1-215-445-91	S	RES, METAL	10K	1%	1/4W
R117	1-247-863-91	S	RES, CARBON	22K	5%	1/4W
R118	1-215-445-91	S	RES, METAL	10K	1%	1/4W
R119	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R120	1-247-807-91	S	RES, CARBON	100	5%	1/4W
R121	1-215-445-91	S	RES, METAL	10K	1%	1/4W
R122	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R123	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R124	1-247-863-91	S	RES, CARBON	22K	5%	1/4W
R125	1-247-843-91	S	RES, CARBON	3.3K	5%	1/4W
R126	1-247-843-91	S	RES, CARBON	3.3K	5%	1/4W
R127	1-247-863-91	S	RES, CARBON	22K	5%	1/4W
R128	1-247-807-91	S	RES, CARBON	100	5%	1/4W
R129	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R130	1-247-843-91	S	RES, CARBON	3.3K	5%	1/4W
R131	1-215-445-91	S	RES, METAL	10K	1%	1/4W
R132	1-215-445-91	S	RES, METAL	10K	1%	1/4W
R133	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R134	1-247-863-91	S	RES, CARBON	22K	5%	1/4W
R135	1-247-843-91	S	RES, CARBON	3.3K	5%	1/4W
R136	1-247-863-91	S	RES, CARBON	22K	5%	1/4W
R137	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R138	1-247-807-91	S	RES, CARBON	100	5%	1/4W
R139	1-247-871-91	S	RES, CARBON	47K	5%	1/4W
R140	1-215-397-91	S	RES, METAL	100	1%	1/4W
R141	1-247-843-91	S	RES, CARBON	3.3K	5%	1/4W
R142	1-215-397-91	S	RES, METAL	100	1%	1/4W
R143	1-215-438-31	S	RES, METAL	5.1K	1%	1/4W
R144	1-247-791-91	S	RES, CARBON	22	5%	1/4W
R145	1-247-775-91	S	RES, CARBON	4.7	5%	1/4W
R146 to R148	1-247-791-91	S	RES, CARBON	22	5%	1/4W
R149	1-247-775-91	S	RES, CARBON	4.7	5%	1/4W
R150 to R173	1-247-791-91	S	RES, CARBON	22	5%	1/4W
RV1 to RV11	1-226-698-11	S	RES, ADJ, CERMET	10K		

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SECTION 1

INTRODUCTION

1.1 GENERAL

The **MXP-2900** Series of consoles succeeds the highly regarded **MXP-2000** Series, incorporating many additions and enhancements which provide greater operational flexibility and a higher level of performance. In addition, through improved circuit design and application, the crosstalk and noise specifications are greatly improved.

Each console is assembled in a frame of simple construction which combines strength and rigidity with comparatively low mass. The use of ribbon harnesses is minimized, most interconnections being made by means of printed circuits. This arrangement enhances reliability and repeatability of performance, and offers an additional benefit in that it allows any module to be mounted in any slot, thereby simplifying ease of configuration and off-the-shelf customization.

All of the audio switches and connectors in the consoles have precious metal contacts, and the audio potentiometers and Faders are conductive plastic types. These factors further improve console reliability and longevity.

The audio circuit design incorporates many novel features and innovations. Plug-in modules and specially designed hybrid devices have been used so as to improve reliability and allow greater ease of service while achieving the necessary packaging density. In addition,jumpers within the modules provide the user with a wide selection of possible logic and signal flow arrangements.

Power for the consoles is provided from a fan-cooled, free-standing power supply. No switching regulators are used in these supplies, this resulting in very low mechanical and electrical noise levels. Furthermore, conservative power supply ratings ensure low operating temperatures.

The **MXP-2900** console is available in 16-channel (Figure 1-1), 26-channel and 36-channel versions, and has applications in radio, recording, film, and television production/post-production environments. For television applications, two integrated parallel editor interface options are offered.

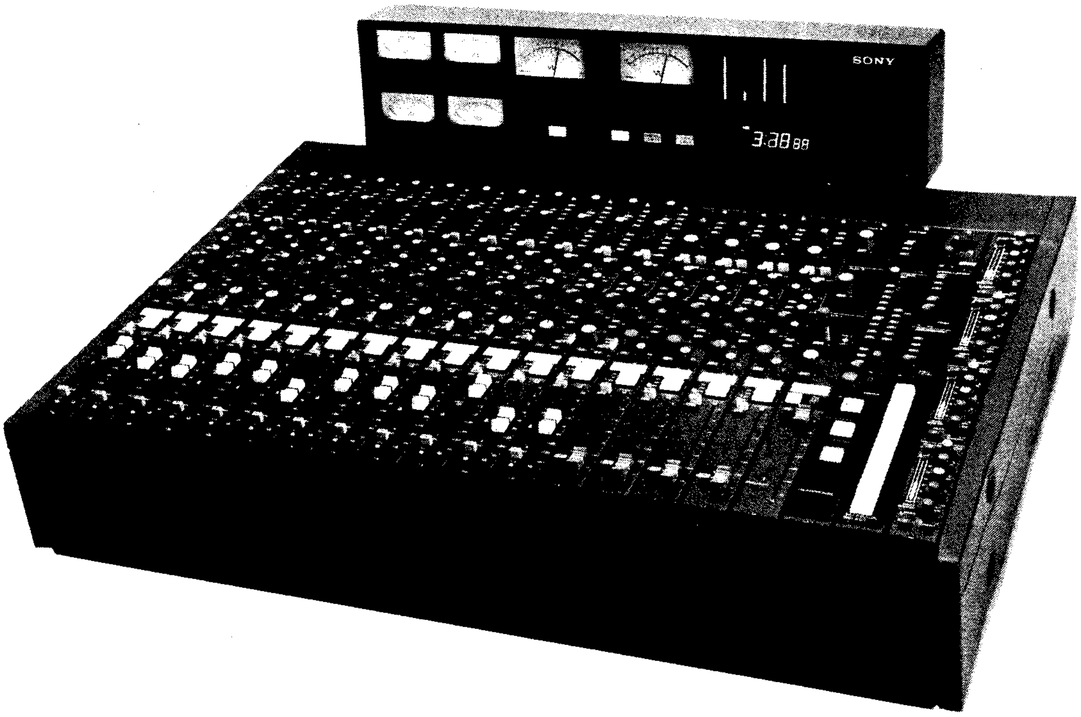


Figure 1-1. MXP-2916 Console

1.2 CONSOLE FEATURES

The major console features include:

- Choice between transformer balanced or electronically balanced inputs
- Choice between microphone or line level inputs
- Three-Band Equalizers with sweepable mid-frequency
- Separate input gain controls on mono Input module
- Built-in phantom power for microphones
- Ideal for video editing with SONY **BVE-900/9000** Editors
- Adjustable depth of fade under editor control
- Separate edit previews for left and right channels
- In-place SOLO (PREVIEW) operation
- Optional Automatic "Fader down" PFL
- Editor control of Audio groups and VCA groups
- Accommodates mono or stereo inputs
- Global editor bypass function
- Three auxiliary Sends, two mono and one stereo
- Selectable direct output from each channel
- Built-in alignment/test oscillator
- Full Control Room and Studio monitoring

1.3 CONSOLE CONFIGURATIONS

The three different frames in the **MXP-2900** Series are the 20-slot, 30-slot and 40-slot models, these definitions indicate the number of slots available for plug-in module insertion. All of these models are available with VU meters or with PPM meters, as required.

Since three slots in any frame must be reserved for mandatory functions, and a fourth slot is allocated for the Dynamics module, the 20-slot console can accommodate up to 16 channel (Input, Stereo Input or Group) modules, this console being designated **MXP-2916**. Similarly, the 30-slot version can accommodate up to 26 channel modules and the 40-slot version accommodates up to 36 channel modules, these being designated **MXP-2926** and **MXP-2936** respectively.

It should be noted that, where the Dynamics module is not used in these consoles, an additional channel module can be installed in its place.

As well as there being three different frame sizes, the available plug-in modules offer a high degree of flexibility when defining console requirements, the only restriction being that provision MUST be made for the mandatory Monitor, Master and Communications functions. Of additional advantage is the fact that any module can be installed in any location in the frame. This provides for easy off-the-shelf customization which allows the user to configure the console in the manner that best suits his needs and working habits.

1.3.1 System Modules

In all three console versions, the mandatory functions are provided by the Monitor, Master and Communications modules. As well as the mandatory modules, four different channel module types are available, these being used for input and grouping functions. If required, signal processing functions (compression, limiting, etc.) can be provided by the Dynamics module.

Table 1-1 summarizes the various different modules used in **MXP-2900** Series consoles. Brief descriptions of all of these modules are given in paragraphs 1.4.1 through 1.4.5, and the power supply is described in paragraph 1.4.6.

MODULE TYPE	DESIGNATION(S)
Mandatory Modules:	
Communications Module (CMM)	**MXBK-2917**
Master Module (SMM)	**MXBK-2908**
Monitor Module (TVM)	**MXBK-2906**
Channel Modules:	
Input Module (MOM)	**MXBK-2901/2901E**
Stereo Input Module (STM)	**MXBK-2904/2904E**
Stereo Input Module (SNQ) (less EQ)	**MXBK-2909/2909E**
Group Module (GRM)	**MXBK-2902**
Other Units:	
Dynamics Module (DYM)	**MXBK-2903**
Power Supply	**AC-P2000A**

Table 1-1. System Modules

QTY	MODULE	DESCRIPTION
1	**AC-P2000A**	Power Supply
1	**MXBK-2906**	Monitor Module
1	**MXBK-2908**	Master Module
1	**MXBK-2917**	Communications Module
4*	**MXBK-2902**	Group Module
1*	**MXBK-2903**	Dynamics Module
A/R	**MXBK-2901/2901E**	Input Module
A/R	**MXBK-2904/2904E**	Stereo Input Module
A/R	**MXBK-2909/2909E**	Stereo Module less Equalizer

NOTES: A/R = As required * = At user's option

Table 1-2. MXP-2916 Configuration

1.3.2 MXP-2916 Consoles

The two 16-Channel console frames are designated **MXP-2916** and **MXP-2916P**, Both of these frames have 20-module capability, and they differ only in their metering arrangements, the **MXP-2916** having Volume Unit (VU) meters and the **MXP-2916P** having Peak Program (PPM) meters conforming to BBC specification BS 4297. In both frames, these six meters are mounted in a separate Meter Housing, together with five bar-graph monitors for Sends and PFL, six status annunciators, a six-digit Clock/Counter and the PFL speaker. The Meter Housing is illustrated in Figure 1-2.

Three of the frame's twenty slots are taken up by the mandatory Monitor, Master and Communications modules, and a fourth slot is available for the Dynamics module. The sixteen remaining slots can be filled with any combination of Input, Stereo Input, and Group modules that meets the user's requirements. It should be noted that, where Group modules are to be used, a total of four of these modules must be installed.

It is again stressed that, where no Dynamics module is installed, the vacant slot can be filled with an additional channel module. Table 1-2 summarizes the **MXP-2916/MXP-2916P** console configuration.

1.3.3 MXP-2926 and MXP-2936 Consoles

The 30-slot consoles **MXP-2926** and **MXP-2926P** are extended versions of the **MXP-2916** and **MXP-2916P** which can accommodate a total of 26 channel modules. These consoles can be fitted with any desired combination of channel modules, providing that the mandatory Master,

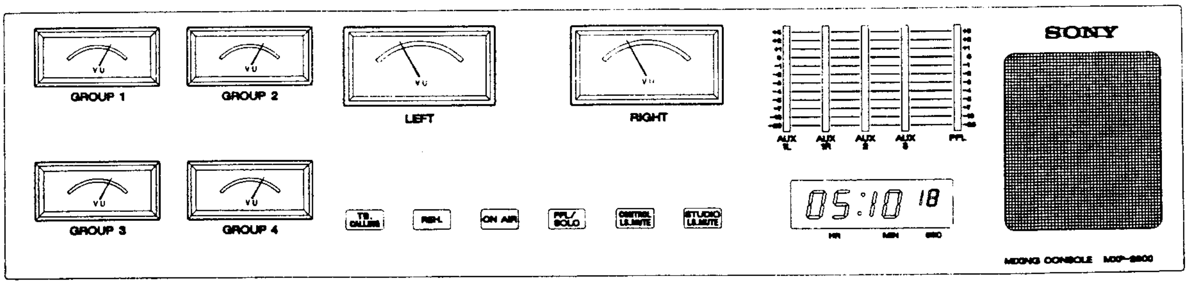


Figure 1-2. Meter Housing

Monitor and Communications modules are included. An added feature of the **MXP-2926**, however, is that provision is made for the inclusion of two (2) Dynamics modules.

Where a second Dynamics module is installed, certain jumpers are removed from the main frame, as will be shown in Section 2. The first Dynamics module is installed in any one of locations 1 through 10, and is used to control up to four channel modules within those locations. Similarly, the second Dynamics module is installed in any of the locations 11 through 30 and controls up to four channel modules within those locations.

The **MXP-2936** and **MXP-2936P** consoles differ from **MXP-2926** and **MXP-2926P** only in that they can accommodate up to 36 channel modules, being similar in all other respects. Where two Dynamics modules are installed, one is inserted into the left half of the console (locations 1 through 20) and the other is inserted in the right half. Each Dynamics module then is used to control up to four channel modules in its own half of the console.

1.4 CONSOLE MODULES

The following paragraphs describe all of the various system modules illustrated in Figure 1-3.

1.4.1 Mandatory Modules

As already has been stated, the Master, Monitor and Communications functions are mandatory to console operation. These functions are performed by the appropriately named Master, Monitor and Communications modules, which are described separately in paragraphs 1.4.1.1 through 1.4.1.3.

1.4.1.1 Master Module MXBK-2908

The Master module (SMM) provides all of the master controls for the console's stereo output (Mix A). These include the master audio Fader, Rehearse/On Air switching, and Dynamics module assignment. Provision also is made for deriving a second, stereo output (Mix B) which exactly duplicates Mix A but is subject to separate level control.

As well as all of the Master controls, this module includes the level and mute controls for for all three Auxiliary Mixes (Sends). It should be noted that although the Auxiliary Mix circuits are physically mounted on the Master module, they are independent of the Master stereo output circuitry.

1.4.1.2 Monitor Module MXBK-2906

The Monitor module (TVM) controls the routing of Monitor and meter signal outputs from the console, selecting the signals supplied to the L (left) and R (right) meters, to the Control Room speakers and to the Studio speakers. Separate level and mono summing controls are provided for all selected signals, together with muting capabilities for left channel, right channel or both channels.

The signals selectable for display on the Meter Housing L and R meters are Mix A, Mix B, and the selected Control Room signal. Provision also is made for monitoring phase (signal sum and difference) on these meters.

Signals available for switching to the Control Room and Studio include:

- Any one of four EXT (external) inputs
- Mix A
- Mix B
- Stereo Send 1
- Send 2
- Send 3

A headphone jack is incorporated in the Monitor module to provide for local listening to the selected control room signal.

For those consoles fitted with Editor interface **MXBK-EI21** or **MXBK-EI22**, two Editor control functions are provided, enabling either complete Editor bypass or muting inactive Editor channels. Other Editor functions allow for left and/or right preview inputs, mutes and solo (preview) commands.

1.4.1.3 Communications Module MXBK-2917

The Communications module (CMM) provides talkback facilities between the console operator and the studio or such other destinations as may be desired. This module also includes a Slate oscillator for generating Take markers, together with pink and white noise generators and a second test oscillator, these being used for calibration purposes. Other major Communications module features include:

- Reference tone adjustable from 15 Hz to 15 kHz
- Tone level and frequency controls (detented at ref level and 1 kHz)
- Easily identifiable warble tone
- Talkback/PFL level control
- Oscillator routing switches
- User-configurable Talkback switching

1.4.2 Channel Modules

Two channel module types are available for the console, these being the monophonic Input module, **MXBK-2901**, and the Stereo Input module, **MXBK-2904**. In addition, a second Stereo Input module version, **MXBK-2909**, is offered, this differing from the standard module in that it does not include an Equalizer. The console can be fitted with all mono modules, all Stereo modules, or any combination of both types that best suits the user's needs.

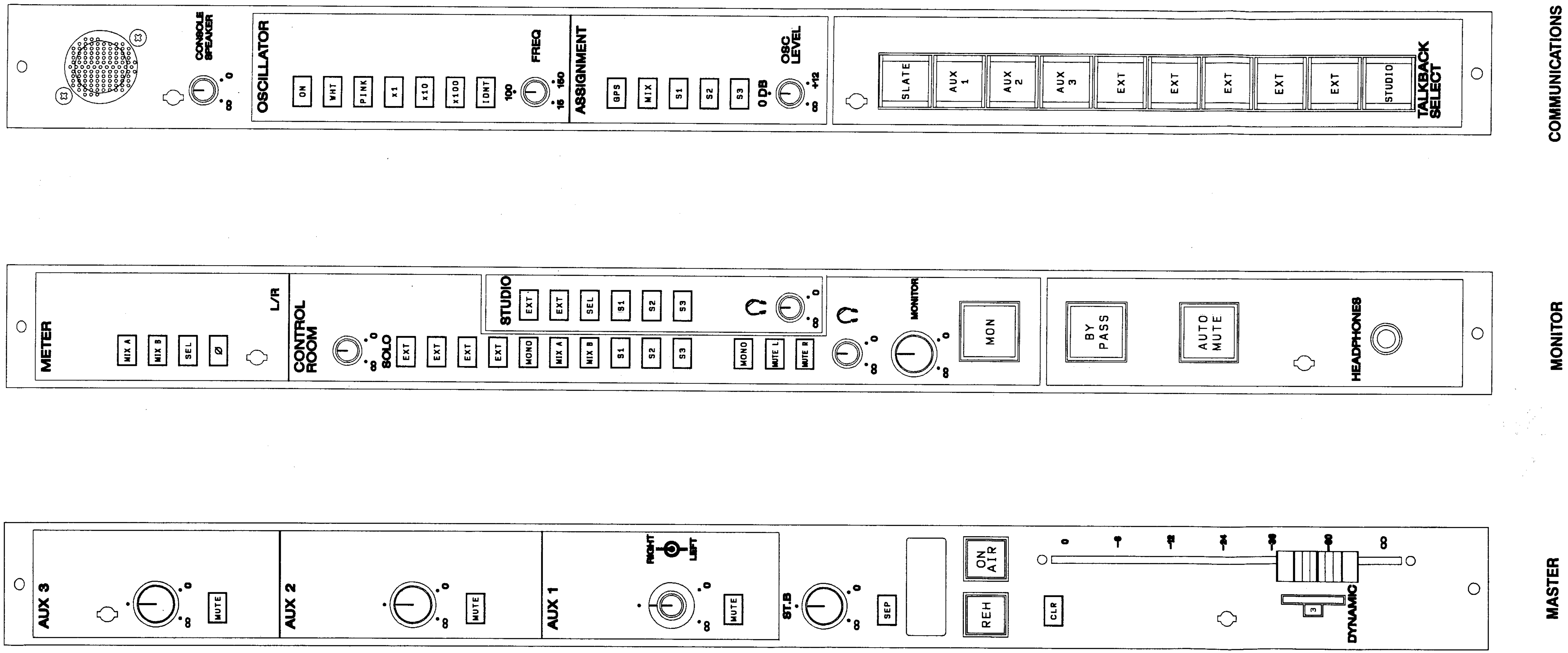

COMMUNICATIONS
CONSOLE SPEAKER
OSCILLATOR
ON
WHT
PINK
X1
X10
X100
IDNT
FREQ
100
15
150
ASSIGNMENT
GPS
MIX
S1
S2
S3
0 DB
OSC LEVEL
+12
SLATE
AUX 1
AUX 2
AUX 3
EXT
EXT
EXT
EXT
EXT
STUDIO
TALKBACK SELECT
MONITOR
METER
MIX A
MIX B
SEL
Ø
L/R
CONTROL ROOM
SOLO
EXT
EXT
EXT
EXT
MONO
MIX A
MIX B
S1
S2
S3
STUDIO
EXT
EXT
SEL
S1
S2
S3
MONO
MUTE L
MUTE R
MONITOR
MON
BY PASS
AUTO MUTE
HEADPHONES
MASTER
AUX 3
MUTE
AUX 2
MUTE
AUX 1
RIGHT
LEFT
MUTE
ST.B
SEP
ON AIR
REH
CLR
0
-6
-12
-24
-36
-60
∞
3
DYNAMIC

Figure 1-3 Console Modules (Sheet 1 of 2)

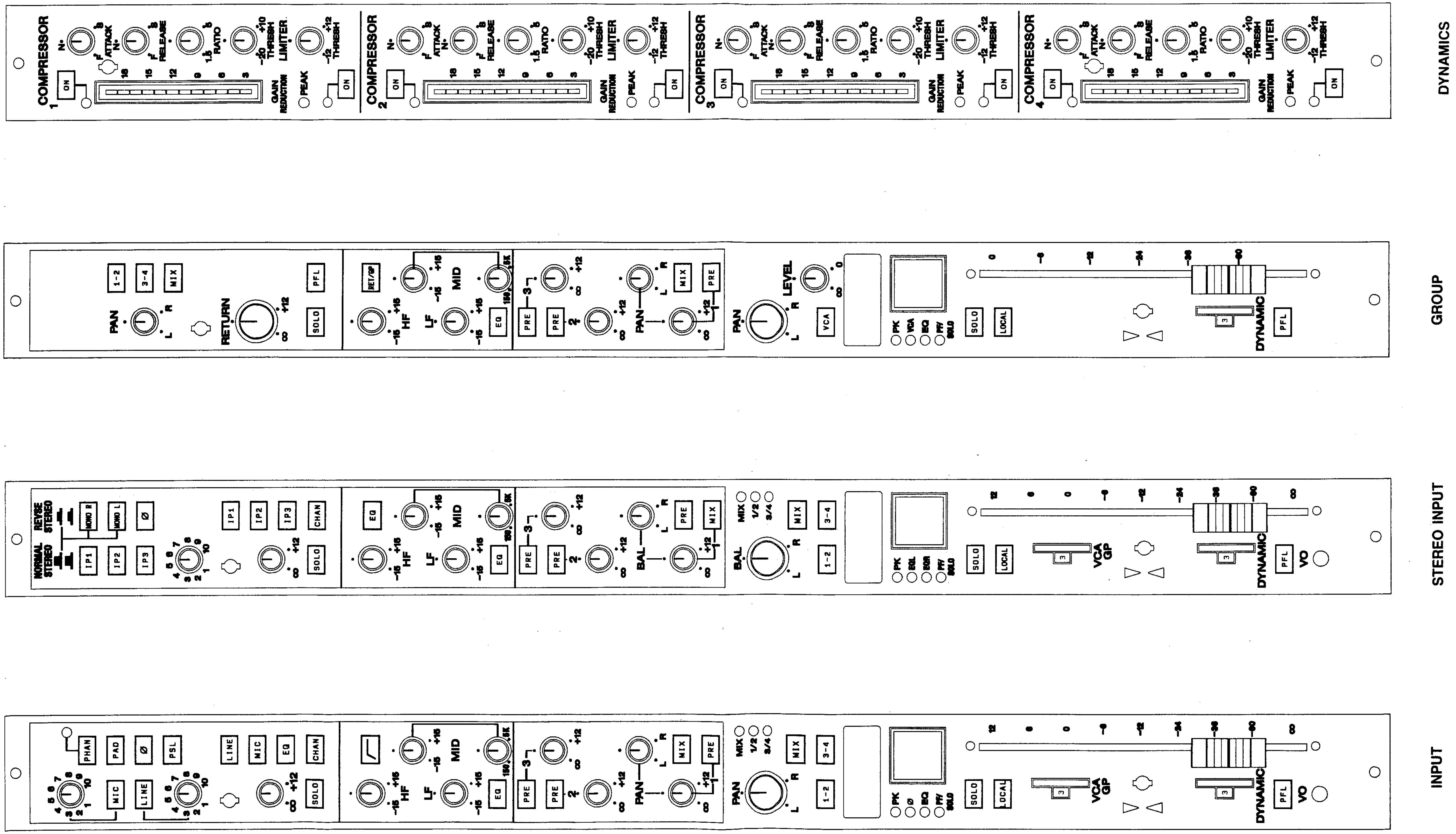

DYNAMICS
COMPRESSOR 1
COMPRESSOR 2
COMPRESSOR 3
COMPRESSOR 4
ON
ATTACK
RELEASE
RATIO
THRESH
LIMITER
GAIN REDUCTION
PEAK
18
15
12
9
6
3
-20
+10
-12
+12
1.5
GROUP
PAN
L
R
RETURN
+12
1-2
3-4
MIX
PFL
SOLO
RET/GP
HF
LF
MID
EQ
+15
-15
150
8K
PRE
3
2
LEVEL
VCA
PK
EQ
PFF
LOCAL
DYNAMIC
0
-6
-12
-24
-36
-60
STEREO INPUT
NORMAL STEREO
REV'SE STEREO
MONO R
MONO L
Ø
IP1
IP2
IP3
CHAN
BAL
MIX
1/2
3/4
SOLO
VCA GP
VO
12
6
INPUT
PHAN
PAD
PSL
LINE
MIC

Figure 1-3 Console Modules (Sheet 2 of 2)

1.4.2.1 Input Module MXBK-2901

The standard mono Input module (MOM) accommodates two input cards, and is provided with the means of selecting one input or the other. Four different input card types are available, two for line inputs (nominal 0 dB or +4 dB) and two for microphone inputs. These are described briefly below:

- **MXBK-LI23** - Transformer balanced line input card
- **MXBK-LI24** - Electronically balanced line input card
- **MXBK-MI23** - Transformer balanced microphone input card
- **MXBK-MI24** - Electronically balanced microphone input card

The input cards can be installed so as to configure the module for two microphone inputs, two line inputs, or one of each input. It should be noted that the standard Input module configuration includes one line input card and one microphone input card.

The major features of the Input module are listed below:

- Direct Output
- One stereo and two mono sends with pre-Fader/post-Fader selection
- Switchable 48V phantom power (for mic inputs only)
- Channel Mute switch
- Reversible audio phase
- Three-band Equalizer with sweepable (150 Hz to 5 kHz) mid-frequency
- Peak Indicator
- Assignable to Dynamics processor (Dynamics module **MXBK-2903**)
- Adjustable depth of fade under editor control
- Independent editor bypass/enable switching
- Editor assignment of Solo (Preview) Left and/or Solo (Preview) Right
- Quasi-balanced busing

1.4.2.2 Stereo Input Modules MXBK-2904 and MXBK-2909

The Stereo Input module accepts line level inputs only, and is fitted with two Line Input cards, **MXBK-LI23** or **MXBK-LI24**. Provision is made for selection between three separate stereo input signals.

Stereo Input module **MXBK-2909** differs from **MXBK-2909** only in that it has no Equalizer. In all other respects, the two modules are identical in form, fit and function, and, except for the Equalizer data, all of the **MXBK-2904** material given in this manual is equally applicable to **MXBK-2909**.

Stereo Input module features include:

- Stereo inputs selectable from three sources
- Stereo three-band Equalizer with sweepable (150 Hz to 5 kHz) mid-frequency
- Assignable to Dynamics processor (Dynamics module **MXBK-2903**)
- One stereo and two mono sends with pre-Fader/post-Fader selection
- Peak Indicator trigered by the higher of the two channel levels
- Assignable to any one of four VCA groups
- Selectable mono left, mono right and reverse stereo functions
- Reversible audio phase
- Adjustable depth of fade under editor control
- Independent editor bypass/enable switching
- Editor assignment of Solo (Preview) Left and/or Solo (Preview) Right
- Quasi-balanced busing

1.4.3 Empty Modules

All three channel modules, **MXBK-2901**, **MXBK-2904** and **MXBK-2909** are available in "empty" versions, i.e. with no input cards installed (see paragraph 1.4.2.1). These modules are designated **MXBK-2901E**, **MXBK-2904E** and **MXBK-2909E**, respectively.

1.4.4 Group Module MXBK-2902

The Group module (GRM) provides both audio and VCA grouping functions. Where Group modules are incorporated, a total of four modules is installed. The major Group module features include:

- One Return channel with PFL and Solo (Preview) functions
- One stereo and two mono Sends with pre-Fader/post Fader selection
- Three-band Equalizer with sweepable (150 Hz to 5 kHz
- Equalizer assignable to either Group or Return audio
- Single Mute switch for entire Group
- Peak indicator
- Group audio assignable to Dynamics module

1.4.5 Dynamics Module MXBK-2903

A single Dynamics module (DYM) provides the console with four separate compressor/limiters, each with its own threshold, which can be used to process individual signals from channel (Input, Stereo Input or Group) modules or the main stereo output from the Master module. Only one Dynamics module can be included in the **MXP-2916**, this leaving 16 slots for channel modules. In the **MXP-2926** or **MXP-2936** models, two Dynamics modules can be employed. However, where two Dynamics modules are incorporated, the number of available channel slots becomes one less, i.e. **MXP-2926** holds only 25 channel modules and **MXP-2936** holds 35.

1.4.6 Power Supply AC-P2000A

The power supply is designed for installation in a standard 19-inch rack or cabinet, its panel height being 5.25 inches (133.5 mm). It supplies all of the voltages necessary to console operation, and can accommodate inputs from 100, 120, 220 or 240 VAC at 50/60 Hz. Nominal power consumption for **MXP-2916** is 280 watts, while **MXP-2926** and **MXP-2936** consume 350 and 450 watts, respectively.

1.5 OPTIONAL EQUIPMENT

1.5.1 Editor Interfaces MXBK-EI21 and MXBK-EI22

Editor Interfaces provides a means of controlling certain console functions from most popular parallel-control editor types, this capability is particularly significant in television post-production applications where the editor interface allows audio to follow video in accordance with the video edit decision list.

1.5.1.1 Editor Interface MXBK-EI21

Editor Interface **MXBK-EI21** provides the interface between the **MXP-2900** mixing console and SONY editors **BVE-3000** and **BVE 5000**. It also can be used to interface parallel-controlled IEC and GVG editors.

This interface offers considerable flexibility, and presents the user with a wide range of operational choices, including:

- Single or dual ramp operation
- Up or down operation on each ramp
- Active high or active low command logic
- Jumper control of any channel
- Normal or automatic mute modes
- Cross fade and/or cut operations

Refer to Section 6 for **MXBK-EI21** connection and jumper details.

1.5.1.2 Editor Interface MXBK-EI22

Editor Interface **MXBK-EI22** provides the interface between the console and SONY editors **BVE-900** and **BVE-9000**. Additionally, **MXBK-EI22** offers an alternative means of connecting a serial interface to the console. Its features include:

- Support for the console's BYPASS function
- Support for the console's AUTOMUTE function (where applicable)

Selectable parallel or BCD preview operation
Access to all editor-supported console functions

Refer to Section 7 for details concerning **MXBK-EI22.**

1.5.2 Relay Card RL-21

The Relay Card (RLC) option is available for installation in Input modules. This option can be programmed so as to provide EITHER Automatic PFL when the Fader is set to full down, OR Reverse Talkback to a remote station. The RLC can be installed in any desired number of Input modules, one card being required for each Remote Talkback station.

1.6 SPECIFICATIONS

Inputs

MIC

Reference level	-58 dBu variable to -14 dBu
Maximum input level (gain control set at minimum)	+6 dBu
Impedance	1.2 kohm
Circuit type	Transformer/ transformerless (opt)

LINE

Reference level	+4 dBu, nominal
Maximum input level	+24 dBu ±1 dB (ref 0 dB)
Impedance	10 kohm
Circuit type	Transformer/ transformerless (opt)

Return

Reference level	+4 dBu, nominal
Maximum input level	+24 dBu ±1 dB (ref 0 dB)
Impedance	10 kohm
Circuit type	Transformerless

Outputs

Reference level	+4 dBu
Maximum input level	+24 dBu ±1 dB (ref 0 dB)
Impedance	< 100 ohms at 1.0 kHz
Circuit type	Transformer

Frequency response

30 Hz to 20 kHz	±0.5 dB
20 Hz to 20 kHz	±1.5 dB

Harmonic distortion (channel line output)	< 0.1% (+12 dBu at 1.0 kHz, THD+N)

Equivalent input noise microphone (150 ohm terminated)	-124 dBu

Noise level at 2-Mix (setup for unity)

MXP-2916/P	
Master Fader Off	-90 dBu
Channel Fader Off	-84 dBu
Fader at reference level, all other faders off (1 channel assigned to 2-Mix, hard panned left or right)	better than -82 dBu
MXP-2926/P	
Master Fader Off	-90 dBu
Channel Fader Off	-83 dBu
Fader at reference level, all other faders off (1 channel assigned to 2-Mix, hard panned left or right)	better than -81 dBu
MXP-2936/P	
Master Fader Off	-90 dBu
Channel Fader Off	-82 dBu
Fader at reference level, all other faders off (1 channel assigned to 2-Mix, hard panned left or right)	better than -80 dBu

Crosstalk (at 16 kHz)

Channel to Channel	-80.0 dB
Bus to Bus	-69.0 dB

Maximum overall gain (TMA or EMA card installed)	+72 dB

Equalizers (0 dB at center detent)

Low Frequency Range (80 Hz)	±15.0 dB; ±4 dB
Mid Frequency Range (150 Hz or 5 kHz)	±15.0 dB; ±4 dB
High Frequency Range (10 kHz)	±15.0 dB; ±4 dB
High Pass Filter	
Cut Off Frequency (-3 dB)	80 Hz
Slope	12 dB/octave
Compressor	
Threshold	-20 dB to +10 dB
Attack time	1 msec to 5 msec
Recovery time	25 msec to 1 sec
Ratio	1.5:1 to 5:1
Limiter	
Threshold	-12 dB to +12 dB
Attack time	100 µsec
Recovery time	500 msec
Ratio	20:1

Oscillator

Frequency	150 Hz to 15 kHz (variable)
Output level	+12 dBu max
Harmonic distortion	less than 0.3%

Power Requirement (power supplied by Power Supply AC-P2000A)

AC voltage input to **AC-P2000A**	90-132 vac or 198-264 vac
DC voltage input to Console	+5 v +5 v REF ±18v ±48 v
Console power consumption (max)	
MXP-2916/P (with 16 Stereo Modules)	280 W
MXP-2926/P (with 26 Stereo Modules)	350 W
MXP-2936/P (with 36 Stereo Modules)	450 W

Dimensions (W x D x H) (approximate)

Consoles	
MXP-2916/P	(inch) 33.50 x 23.20 x 13.06 (cm) 85.09 x 58.93 x 33.17
MXP-2926/P	(inch) 49.50 x 23.20 x 13.06 (cm) 125.73 x 58.93 x 33.17
MXP-2916/P	(inch) 65.50 x 23.20 x 13.06 (cm) 166.37 x 58.93 x 33.17
Power Supply **AC-P200A** (19" EIA standard rack mount configuration)	(inch) 19.0 x 12.0 x 5.25 (cm) 48.3 x 30.5 x 13.3

Weight (approximate)

Consoles	lbs	(kg)
MXP-2916/P	125	(57)
MXP-2926/P	175	(80)
MXP-2936/P	225	(102)
Power Supply **AC-P2000A** (unpacked)	35	(15.87)

Environment

Operating Temperature Range	+41°F to +95°F (+5°C to 35°C)
Relative Humidity (non-condensing)	80% max
Storage Temperature Range	-4°F to +140°F (-20°C to 60°C)

SECTION 2

INSTALLATION

2.1 GENERAL

MXP-2900 consoles are shipped from the factory with all modules in place, thus minimizing installation time and effort. The unpacking and installation procedures for the console are presented in this section of the manual.

2.2 UNPACKING

The console is shipped in a wooden crate whose sides are held together by means of Klimp fasteners. To unpack the console, the Klimp fasteners are pried away from the crate with a screwdriver, claw hammer, or some other suitable tool, and the crate is disassembled, starting from the top cover. Once the cover and sides are removed, the console becomes directly accessible for removal to its planned location.

2.3 INSTALLATION PLANNING

Before installation is carried out, the space, power, and environmental requirements of the equipment must be considered. The following paragraphs are presented as guidelines for installation planning.

2.3.1 Space Requirements

The physical dimensions for all three console models (20-slot, 30-slot and 40-slot) are illustrated in Figure 2-1, and the appropriate table cutout dimensions are shown in Figure 2-2. When considering console placement, these data can be used as the basis for an overall floor plan. As well as the console and its rack-mounted power supply, the floor plan also must take into account the space requirements for all of the associated audio equipments. Consideration also must be given to both operational convenience and accessibility for service.

The power supply is designed for mounting in a standard 19-inch equipment rack. Its panel height is 5.25 inches, and the total package depth is 12.5 inches. It is most important to note that an extra four inches of depth must be allowed behind the power supply to accommodate cables and connectors.

2.3.2 Environmental Requirements

The operating environment for the console should be such that the ambient temperature does not exceed 35°C (95°F) and the humidity does not exceed 80% (non-condensing). Further, to prevent heat build-up in the equipment, an unrestricted flow of air is essential.

Because of the heat dissipated in the console and its associated equipment, the air-conditioning system in the control room may need to be adjusted. Approximate heat dissipation figures for the **MXP-2916**, **MXP-2926** and **MXP-2936** consoles are, respectively, 1000, 1500 and 2000 BTU/hr.

2.3.3 Power Requirements

The Power supply is designed to accept input voltages from 90 to 132 vac or 198 to 264 vac at 50/60 Hz. For the **MXP-2916**, total power consumption is about 280 watts, while those for the **MXP-2926** and **MXP-2936** are about 350 watts and 450 watts, respectively.

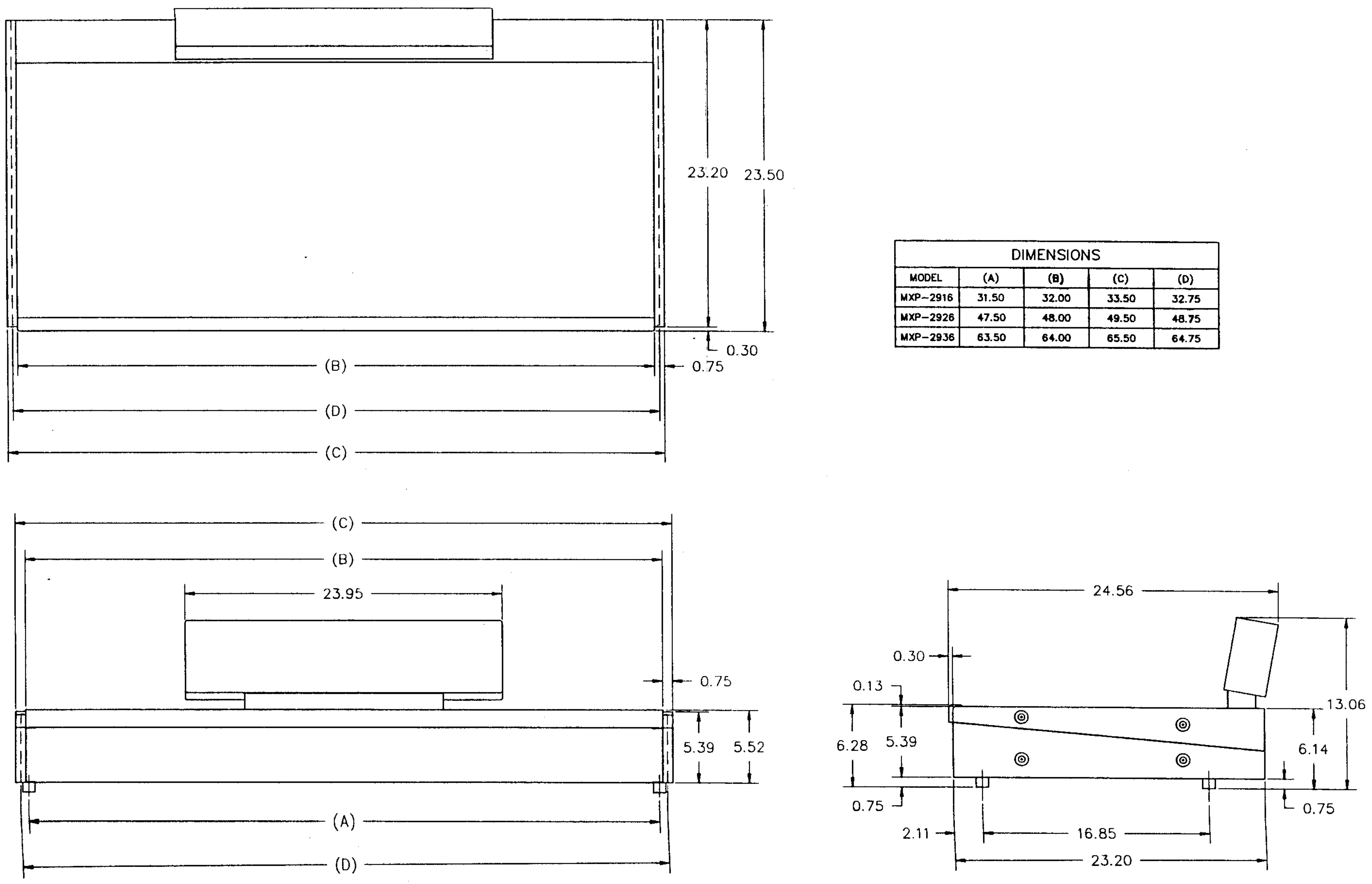
2.4 INSTALLATION

2.4.1 Equipment Location

Since the physical placement of the console depends largely upon the type of facility available, it is not possible to give specific, detailed procedures for selecting its location. However, the guidelines presented in these paragraphs should be followed as closely as possible.

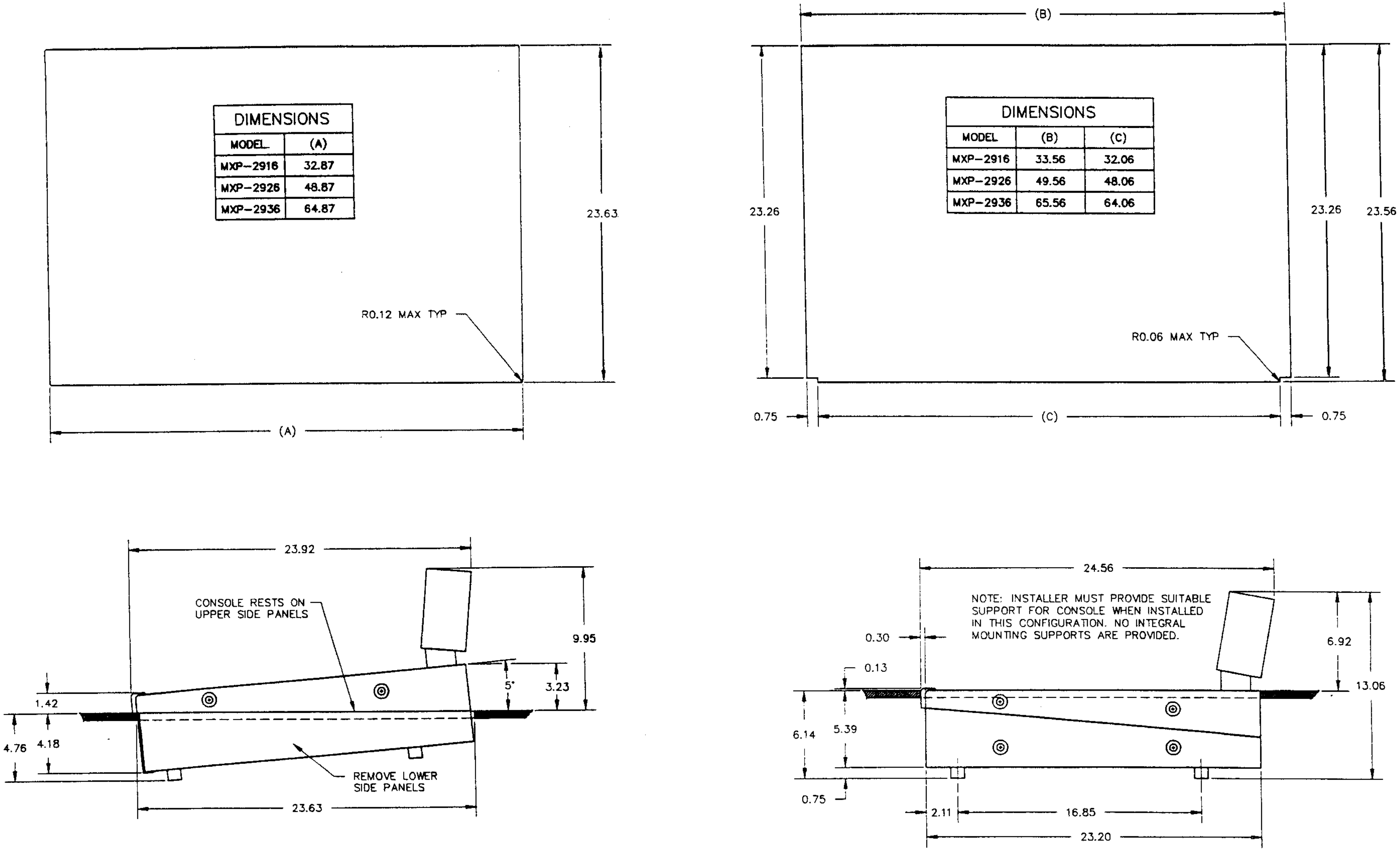
When the location is being selected, consideration must be given not only to the console and power supply, but also to the peripheral equipments which will be used with the console. Further, since different operating applications will require different peripherals, space must be allowed for these to be moved around the console. Finally, ease of operation and accessibility for service also must be borne in mind.

Once the console has been placed in position, the power supply location must be determined. The **AC-P2000A** supply is designed for installation in a standard 19-inch rack or cabinet. Its panel height is 5.25 in. (133.5 mm), and the total package depth (including ground lug) is 12.5 in. (317.5 mm). An addition space of at least four inches (101.6 mm) must be allowed behind the power supply for cables and connectors.


23.20
23.50
0.30
0.75
(B)
(D)
(C)
(C)
(B)
23.95
0.75
5.39
5.52
(A)
(D)
24.56
0.30
0.13
6.28
5.39
0.75
2.11
16.85
23.20
13.06
6.14
0.75

DIMENSIONS				
MODEL	(A)	(B)	(C)	(D)
MXP-2916	31.50	32.00	33.50	32.75
MXP-2926	47.50	48.00	49.50	48.75
MXP-2936	63.50	64.00	65.50	64.75

Figure 2-1. Console Dimensions



DIMENSIONS	
MODEL	(A)
MXP-2916	32.87
MXP-2926	48.87
MXP-2936	64.87

DIMENSIONS		
MODEL	(B)	(C)
MXP-2916	33.56	32.06
MXP-2926	49.56	48.06
MXP-2936	65.56	64.06

(A)
23.63
R0.12 MAX TYP
(B)
(C)
23.26
23.56
0.75
R0.06 MAX TYP
23.92
9.95
3.23
5°
1.42
4.76
4.18
CONSOLE RESTS ON UPPER SIDE PANELS
REMOVE LOWER SIDE PANELS
24.56
6.92
13.06
0.30
0.13
6.14
5.39
2.11
16.85
23.20

NOTE: INSTALLER MUST PROVIDE SUITABLE SUPPORT FOR CONSOLE WHEN INSTALLED IN THIS CONFIGURATION. NO INTEGRAL MOUNTING SUPPORTS ARE PROVIDED.

TABLE CUTOUT DETAIL
5° SLANTED INSTALLATION

TABLE CUTOUT DETAIL
FLUSH INSTALLATION

Figure 2-2. Table Cutout Dimensions

CAUTION

THE POWER SUPPLY SHOULD BE RACK-MOUNTED, AND THE FLOOR BELOW THE RACK MUST BE OF NON-FLAMMABLE MATERIAL, PREFERABLY METAL OR CONCRETE.

Power supply placement requires careful consideration. It must be located in such a position as to avoid electromagnetic interference with other equipment while remaining within the confines of its output cable length, this being 17 feet (5.18 meters).

Since the power supplies for all console versions depend upon convection cooling, they must be mounted with a MINIMUM space of three inches above and below to allow a free flow of air.

2.4.2 Power Supply Connections

The power supply is connected to the console by a cable. The cable is connected to the console and shipped from the factory coiled and stored under the console frame. After positioning the console and power supply, usually, it is only necessary to uncoil the cable and plug the connector into the multipin receptacle at the rear of the supply, then install the connector retaining bracket.

However, some versions of the power supply do not have slots that accept the cable connector latching tabs and connection is impeded. The tabs must be carefully broken away from the connector, leaving no portion of the tab extended beyond the edge of the connector. Do this by grasping the tab with pliers close to the tab and housing riveted junction. Without cracking the housing or ripping the rivets out of the housing, bend the tab back and forth until metal fatigue cracks the tab. The connector can now be plugged into the power supply and secured with the retaining bracket. This procedure is illustrated in Figure 2-3.

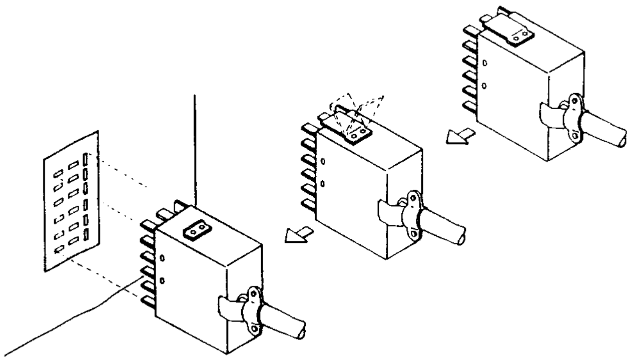


Figure 2-3. Cable Connector Modification

The retaining bracket must also be used to secure a tab-locked plugin connection.

The following paragraphs describe the electrical connections for the console and power supply.

CAUTION

DO NOT CONNECT POWER TO THE EQUIPMENT UNTIL THESE PARAGRAPHS HAVE BEEN READ AND UNDERSTOOD.

2.4.2.1 General Considerations

Improper AC connections can lead to hum, buzz and rf problems within the equipment, and it is essential that the control room wiring be kept as “clean” as possible.

Under ideal conditions, the control room power would be totally isolated from the general-purpose wiring in the building, this is accomplished by having the power company install a separate power transformer and service entrance. Where this is not possible, an isolating transformer should be installed, this transformer having a Faraday shield connected to the ground side of its primary winding.

It is strongly advised that all of the control room equipment be connected to the same phase of the AC wiring. Fluorescent lighting, refreshment machines, SCR dimmers, fans, etc., should NEVER be connected to the control room line, but should be powered from a separate circuit or, as an absolute minimum, from a different phase.

All AC power lines should be shielded in metal conduit and physically isolated from the audio wiring; specifically, audio and power cables should never be run in the same trough. The console, and other audio equipment, should be situated at least 30 feet away from the master power panel and the service entrance conduit.

Since conduit grounds are totally unsuitable for audio installations, the greatest care must be taken to prevent audio equipment grounds from becoming shorted, or otherwise connected, to conduits. Where conduits are allowed to touch each other, touch water pipes, and generally interconnect in a random manner, such connections can introduce ground loops, with their concomitant noise, into an otherwise clean installation.

2.4.2.2 Power Supply Connections

The supply is designed to accommodate inputs of 100, 120, 220 or 240 VAC at 50/60 Hz. Table 2-1 lists the voltage input limits and fuse ratings for each of the nominal voltages.

VOLTAGE LABEL DISPLAYED	INPUT VOLTAGE LIMITS (VAC)	FUSE RATING
100	90-110	6.0 A
120	108-132	6.0 A
220	198-242	3.0 A
240	216-264	3.0 A

Table 2-1. Input Voltage Limits

Input voltage selection is made by correctly inserting a small card into the the fuseholder (see Figure 2-4). The procedure is as follows:

STEP 1. Determine the local power line voltage.

STEP 2. Disconnect the AC input cable from the supply rear panel.

STEP 3. Slide the small plastic window (next to the power input connector) to the left.

STEP 4. Look into the lower part of the opening revealed in STEP 3 and observe the small plug-in card. Note the voltage label that is visible on the card.

STEP 5. If the limits for the voltage displayed on the card correspond to the line voltage determined in STEP 1 (Table 2-1), go directly to STEP 6. Otherwise, pull out the card and reinsert it so that the correct label is displayed.

STEP 6. Verify that the fuse is correct in accordance with the input voltage (see Table 2-1). If not, replace the fuse as necessary.

STEP 7. Slide the plastic window to the right and reconnect the AC input cable.

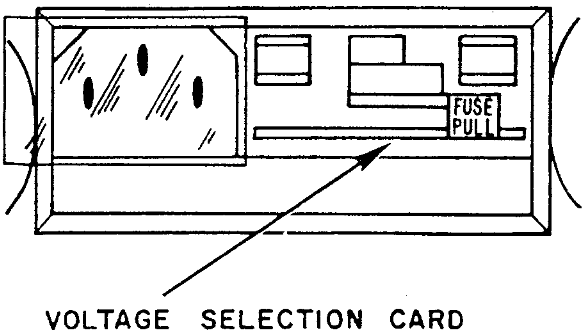


Figure 2-4. Fuseholder

2.4.2.3 Power Supply Output Voltages

Power supply output voltages can be measured at the terminal strip located at the extreme right rear of the console. To gain access to the terminal strip, the module at the extreme right-hand end of the console must be removed. The terminal strip is mounted at the right-hand end of the mother board, close to the console rear panel.

Figure 2-5 illustrates the terminal strip, and shows the measurement points for the various power supply outputs. The limits for all of these voltages are listed in Table 2-2.

TERMINAL STRIP PIN #	NOMINAL VOLTAGE (VDC)	LIMITS (VDC)	
		MIN	MAX
6	+5 (LOGIC)	+4.8	+5.2
7	+5 (REF)	+4.995	+5.005
8	-18	-18.0	-18.5
9	+18	+18.0	+18.5
10	+48	+47.5	+48.5

Table 2-2. Power Supply Voltage Limits

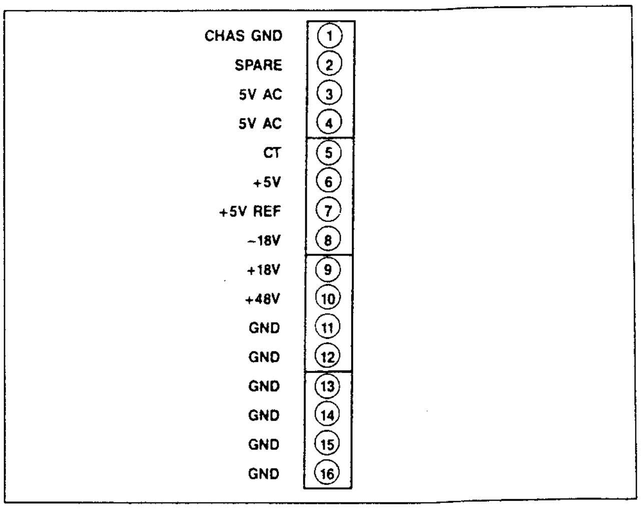


Figure 2-5. Power Supply Terminal Strip

2.4.3 EXTERNAL EQUIPMENT CONNECTIONS

All connections between the console and external equipments are made through the Input/Output connectors at the rear of the console. The format for these connectors is illustrated in Figure 2-6, and the mating connector assembly procedure is given in Figure 2-7 and paragraph 2.4.4. Table 2-3 lists the inputs, outputs, and pin connections for each module.

PIN No.	MASTER MODULE	MONITOR MODULE	COMMUNICATION MODULE
1	N.C.	N.C.	N.C.
2	ON AIR 2 RLY N/C	INTERVIEWER HP L	*TALKBACK/PFL OUT
3	ON AIR 1 RLY N/C	GUEST HP L	N.C.
4	REHEARSE 2 RLY N/O	STUD MIC LIVE RLY COM	N.C.
5	REHEARSE 1 RLY N/O	CONT MIC LIVE RLY COM	N.C.
6	N.C.	STUDIO LS L LO	N.C.
7	N.C.	CONT RM LS R HI	N.C.
8	MONO HI	CONT RM LS L HI	TB IN 4 HI
9	MIX B R HI	EXT 4 R HI	TB IN 3 HI
10	MIX B L HI	EXT 4 L HI	TB IN 2 HI
11	MIX A R HI	EXT 3 R HI	TB IN 1 HI
12	MIX A L HI	EXT 3 L HI	TB OUT 5 HI
13	SEND 3 HI	EXT 2 R HI	TB OUT 4 HI
14	SEND 2 HI	EXT 2 L HI	TB OUT 3 HI
15	SEND 1 R HI	EXT 1 R HI	TB OUT 2 HI
16	SEND 1 L HI	EXT 1 L HI	TB OUT 1 HI
17	ON AIR 2 RLY COM	INTERVIEWER HP RET	GROUND
18	ON AIR 1 RLY COM	GUEST HP RET	N.C.
19	REHEARSE 2 RLY COM	STUD MIC LIVE RLY N/C	N.C.
20	REHEARSE 1 RLY COM	CONT MIC LIVE RLY N/C	N.C.
21	N.C.	STUDIO LS R LO	N.C.
22	N.C.	CONT RM LS R LO	N.C.
23	GROUND	GROUND	GROUND
24	GROUND	GROUND	GROUND
25	GROUND	GROUND	GROUND
26	GROUND	GROUND	GROUND
27	GROUND	GROUND	GROUND
28	GROUND	GROUND	GROUND
29	GROUND	GROUND	GROUND
30	N.C.	N.C.	N.C.
31	ON AIR 2 RLY N/O	INTERVIEWER HP R	*CONSOLE LS AMP
32	ON AIR 1 RLY N/O	GUEST HP R	N.C.
33	REHEARSE 2 RLY N/C	STUD MIC LIVE RLY N/O	N.C.
34	REHEARSE 1 RLY N/C	CONT MIC LIVE RLY N/O	N.C.
35	N.C.	STUDIO LS R HI	N.C.
36	N.C.	STUDIO LS L HI	N.C.
37	MONO LO	CONT RM LS L LO	TB IN 4 LO
38	MIX B R LO	EXT 4 R LO	TB IN 3 LO
39	MIX B L LO	EXT 4 L LO	TB IN 2 LO
40	MIX A R LO	EXT 3 R LO	TB IN 1 LO
41	MIX A L LO	EXT 3 L LO	TB OUT 5 LO
42	SEND 3 LO	EXT 2 R LO	TB OUT 4 LO
43	SEND 2 LO	EXT 2 L LO	TB OUT 3 LO
44	SEND 1 R LO	EXT 1 R LO	TB OUT 2 LO
45	SEND 1 L LO	EXT 1 L LO	TB OUT 1 LO

NOTES:

COM = Common Contact
N/C = Normally Closed
N/O = Normally Open
HP = Headphones
LS = Loudspeaker
TB = Talkback
N.C. = Not Connected

(Relay contacts are listed in their power-up state)

* Pins 2 and 31 on the Communications module connector must be jumpered together if it is desired to monitor TALKBACK/PFL at the Meter Housing speaker

Table 2-3. Input/Output Connections (Sheet 1 of 2)

CAUTION

INPUT MODULES AND GROUP MODULES INPUT/OUTPUT CONNECTORS

THE PATCH MUST BE HARDWIRED FOR PROPER OPERATION UNLESS EXTERNAL PATCH POINT IS USED

INPUT MODULES:	HARDWIRE PINS 7, 36
GROUP MODULES:	HARDWIRE PINS 7, 36 HARDWIRE PINS 8, 9

COMMUNICATIONS MODULE INPUT/OUTPUT CONNECTOR

TO ENABLE PFL SPEAKER,
HARDWIRE PINS 2, 31

CAUTION

INPUT MODULES AND GROUP MODULES INPUT/OUTPUT CONNECTORS

THE PATCH MUST BE HARDWIRED FOR PROPER OPERATION UNLESS EXTERNAL PATCH POINT IS USED

INPUT MODULES:	HARDWIRE PINS 7, 36
GROUP MODULES:	HARDWIRE PINS 7, 36 HARDWIRE PINS 8, 9

COMMUNICATIONS MODULE INPUT/OUTPUT CONNECTOR

TO ENABLE PFL SPEAKER,
HARDWIRE PINS 2, 31

PIN No.	INPUT MODULE	GROUP MODULE	STEREO INPUT MODULE
1	N.C.	N.C.	N.C.
2	REVERSE TB	N.C.	STOP 3
3	COUGH A SELECT	N.C.	STOP 2
4	MUTE A SELECT	N.C.	STOP 1
5	B RELAY N/C	N.C.	OUTPUT R HI
6	A RELAY N/C	N.C.	OUTPUT L HI
7	***PATCH SEND	*GROUP PATCH SEND	INPUT 3 R HI
8	OUTPUT SHIELD	**2-MIX PATCH RETURN	INPUT 3 L HI
9	OUTPUT HI	**2-MIX PATCH SEND	INPUT 2 R HI
10	GROUND	N.C.	INPUT 2 L HI
11	GROUND	GROUND	GROUND
12	INPUT B SHIELD	RETURN HI	GROUND
13	INPUT B HI	N.C.	INPUT 1 R HI
14	GROUND	N.C.	GROUND
15	INPUT A SHIELD	GROUND	GROUND
16	INPUT A HI	GROUP OUT HI	INPUT 1 L HI
17	REVERSE TB COM	N.C.	PRE OUT R (TEST)
18	COUGH COM	N.C.	START/STOP COM
19	MUTE COM	N.C.	OUTPUT R COM
20	B RELAY COM	N.C.	OUTPUT L COM
21	A RELAY COM	N.C.	SOLO (PREVIEW) CMD EDITOR R
22	PATCH COM	GROUP PATCH SHIELD	SOLO (PREVIEW) CMD EDITOR L
23	GROUND	GROUND	GROUND
24	GROUND	GROUND	GROUND
25	GROUND	GROUND	GROUND
26	GROUND	GROUND	GROUND
27	GROUND	GROUND	GROUND
28	GROUND	GROUND	GROUND
29	GROUND	GROUND	GROUND
30	N.C.	N.C.	N.C.
31	SOLO (PREVIEW) CMD EDITOR L	N.C.	START 3
32	COUGH B SELECT	N.C.	START 2
33	MUTE B SELECT	N.C.	START 1
34	B RELAY N/O	N.C.	OUTPUT R LO
35	A RELAY N/O	N.C.	OUTPUT L LO
36	***PATCH RETURN	*GROUP PATCH RETURN	INPUT 3 R LO
37	SOLO (PREVIEW) CMD EDITOR R	N.C.	INPUT 3 L LO
38	OUTPUT LO	2-MIX SHIELD	INPUT 2 R LO
39	GROUND	N.C.	INPUT 2 L LO
40	GROUND	GROUND	GROUND
41	INPUT B SHIELD	RETURN LO	GROUND
42	INPUT B LO	N.C.	INPUT 1 R LO
43	GROUND	N.C.	GROUND
44	INPUT A SHIELD	GROUND	GROUND
45	INPUT A LO	GROUP OUT LO	INPUT 1 L LO

NOTES:

* Pins 7 and 36 on the Group connector must be jumpered together if no external unit is connected to the patch

** Pins 8 and 9 on the Group connector must be jumpered together if no external unit is connected to the patch

*** Pins 7 and 36 on the Input connector must be jumpered together if no external unit is connected to the patch

Table 2-3. Input/Output Connections (Sheet 2 of 2)

The signals on the Input/Output connector at any given location depend upon the module inserted at that location. For example, if the Master module is installed in location 16, then the signals on the connector at location 16 will be as listed in Table 2-3 for the Master module. It should be noted that the Dynamics module has no external connections.

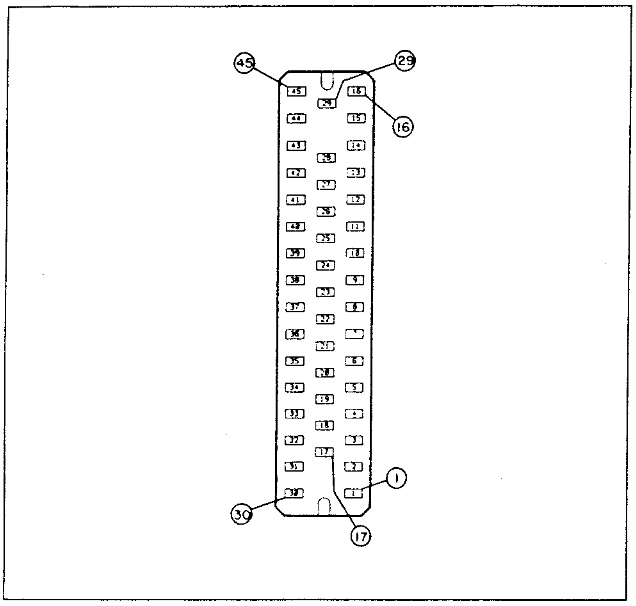


Figure 2-6. Input/Output Connector

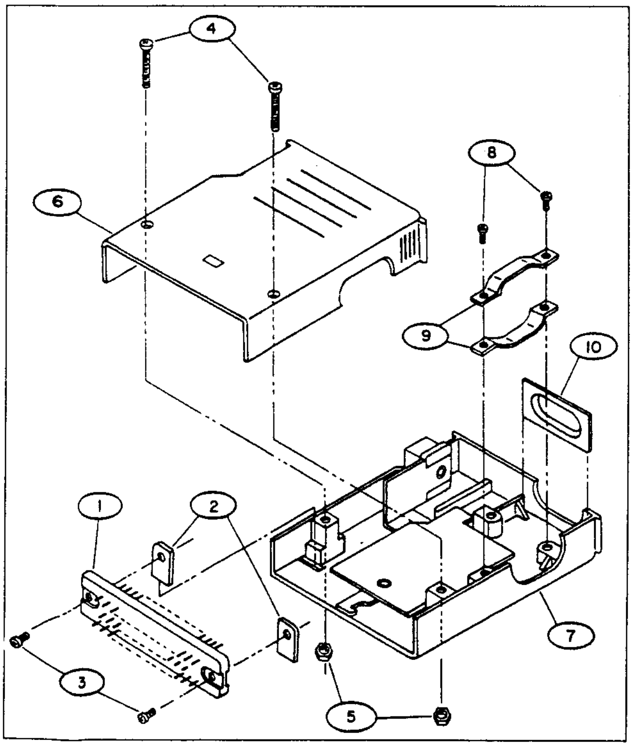


Figure 2-7. Mating Connector assembly

2.4.4 Input/Output Mating Connectors

Mating plugs for the Input/Output connectors are supplied with the console. Assembly instructions for these plugs are given in the following procedure and in Figure 2-7.

Each connector is shipped in two separate packages. The smaller package contains the connector itself, while the larger package contains the housing, together with a second small package holding the connector mounting hardware and the exit port cover plate.

STEP 1. Open the first small package and remove the connector. Referring to Table 2-3, wire the connector as required.

STEP 2. Open the large package and remove the small bag containing the connector mounting hardware and exit port cover plate (Fig. 2-7, items 2, 3 and 10).

STEP 3. Install the connector mounting hardware (items 2 and 3) as illustrated, but do not tighten.

STEP 4. Remove the retaining nuts and screws (items 4 and 5), and open the connector housing.

STEP 5. Unfasten and the strain relief mounting screws (item 8) and remove the strain relief clamp.

NOTE: It is recommended that the strain relief be remounted as shown so as to allow the cable to exit from the side of the connector, i.e. towards the rear of the console.

STEP 6. Install the connector assembly (item 1) in the lower clam shell (item 7) so that the connector tabs (item 2) fit into the slots.

STEP 7. Route the cable through the strain relief clamp (item 9), and install and tighten the clamp screws (item 8).

STEP 8. Install the cover plate (item 10) over the unused exit port.

STEP 9. Install the upper clam shell (item 6) and retaining hardware (items 4 and 5).

STEP 10. Tighten the connector mounting screws (item 3).

2.5 SYSTEM CONFIGURATION JUMPERS

The operational flexibility offered by the various possible module arrangements in **MXP-2900** consoles is further enhanced by means of a series of jumper connections. These jumpers allow the modules to be set up so as to provide the console configuration that best suits the user's needs. Table 2-4 through Table 2-10 lists, by module, all the jumpers in a **MXP-2900** series console. Each table lists the factory set condition for the module's jumpers, indicates the jumpers that are used with editors, and briefly describes jumper function.

Note: Editor related jumper connections are open (OUT) in consoles that are not equipped with an Editor Interface when leaving the factory.

More detailed descriptions of jumper use are given in the paragraphs that follow the tables.

	JUMPER	FACTORY CONDITION	FUNCTION
MON BOARD	JW1	OUT	LINE OUT SHIELD TO AUDIO GROUND
	JW2	OUT	INPUT 2 SHIELD TO AUDIO GROUND
	JW3	OUT	INPUT 1 SHIELD TO AUDIO GROUND
	JW4	IN	LINE OUT SHIELD TO CHASSIS GROUND
	JW5	IN	INPUT 2 SHIELD TO CHASSIS GROUND
	JW6	IN	INPUT 1 SHIELD TO CHASSIS GROUND
	JW7	IN	CHANNEL UNMUTED AT POWER UP
	JW8	OUT	CHANNEL MUTED AT POWER UP
	JW9	IN	CHANNEL UNMUTED AT POWER UP
	JW10	OUT	CHANNEL MUTED AT POWER UP
	JW15	OUT	AUTOMATIC PFL
	JW16	IN	PRE-EQ TO DYNAMICS MODULE
	JW17	OUT	POST-EQ SIGNAL TO DYNAMICS MODULE
	JW18	IN	MUTE A MUTES CONTROL ROOM MONITOR
	JW19	OUT	MUTE A MUTES STUDIO MONITOR
	JW20	OUT	MUTE B MUTES CONTROL ROOM MONITOR
	JW21	IN	MUTE B MUTES STUDIO MONITOR
	JW22	IN	FADER TO VCA INPUT
	JW23 x	IN	VCA UNITY GAIN FOR DEPTH OF FADE
	JW24 x	OUT	VCA +12dB GAIN FOR DEPTH OF FADE
	JW25 x	*	{EI-22} UP/DOWN LED INDICATOR
	JW26 x	**	{EI-21} UP/DOWN LED INDICATOR
	JW27 x	*	{EI-22} VCA CONTROL OF DEPTH OF FADE
	JW28 x	**	{EI-21} VCA CONTROL OF DEPTH OF FADE
	JW29 x	OUT	SEE PARAGRAPH 2.5.1.9
	JW30 x	*	{EI-22} SOLO (PREVIEW) COMMAND
	JW31	OUT	FUTURE PROVISION
	JW32 x	OUT	SEE PARAGRAPH 2.5.1.12
AEF BOARD	JW1 x	IN	VCA INPUT LEFT DIRECTS SOLO (PREVIEW) BUS
	JW2 x	IN	VCA INPUT RIGHT DIRECTS SOLO (PREVIEW) BUS
	JW3 x	OUT	BALANCED VCA OUTPUT LEFT DIRECTS SOLO (PREVIEW)
	JW4 x	OUT	BALANCED VCA OUTPUT RIGHT DIRECTS SOLO (PREVIEW)

x EDITOR RELATED JUMPER
* IN WITH MXBK-EI22 ONLY
** IN WITH MXBK-EI21 ONLY

Table 2-4. Mono Input/Output Module Jumper Information

	JUMPER	FACTORY CONDITION	FUNCTION
STM BOARD	JW1	IN	LINE OUT LEFT SHIELD TO CHASSIS
	JW2	OUT	LINE OUT LEFT SHIELD TO AUDIO GND
	JW101	IN	LINE OUT RIGHT SHIELD TO CHASSIS GND
	JW102	OUT	LINE OUT RIGHT SHIELD TO AUDIO GND
	JW9	OUT	AUTOMATIC PFL
	JW14	OUT	CHANNEL MUTED AT POWER UP
	JW15	IN	CHANNEL UNMUTED AT POWER UP
	JW16	OUT	CHANNEL MUTED AT POWER UP
	JW17	IN	CHANNEL UNMUTED AT POWER UP
	JW18	IN	VCA FADER INPUT LEFT TO FADER
	JW19	IN	VCA FADER INPUT RIGHT TO FADER
	JW21 x	**	{EI-21} UP/DOWN LED INDICATOR
	JW22 x	*	{EI-22} UP/DOWN LED INDICATOR
	JW23 x	*	EI-22} CONTROL INPUT FOR DEPTH OF FADE
	JW24 x	**	{EI-21} CONTROL INPUT FOR DEPTH OF FADE
	JW25 x	OUT	SEE PARAGRAPH 2.5.2.6
	JW26 x	OUT	VCA +12dB GAIN FOR DEPTH OF FADE
	JW27 x	IN	VCA UNITY GAIN FOR DEPTH OF FADE
	JW28	IN	MIX RIGHT TO SEND 1 RIGHT VIA MIX SWITCH
	JW29	IN	MIX LEFT TO SEND 1 LEFT VIA MIX SWITCH
	JW30	OUT	BYPASS MIX RIGHT TO SEND 1 RIGHT SWITCH
	JW31	OUT	BYPASS MIX LEFT TO SEND 1 LEFT SWITCH
	JW32	OUT	MONO SUMMING OF MIX RIGHT VIA MIX SWITCH
	JW33	OUT	MONO SUMMING OF MIX LEFT VIA MIX SWITCH
	JW34	IN	2-MIX LEFT TO 2-MIX LEFT VIA 2-MIX SWITCH
	JW35	IN	2-MIX RIGHT TO 2-MIX RIGHT VIA 2-MIX SWITCH
	JW104 x	*	{EI-22} SOLO (PREVIEW) LEFT
	JW107 x	*	{EI-22} SOLO (PREVIEW) RIGHTT
	JW105 x	OUT	SEE PARAGRAPH 2.5.2.10
	JW106	OUT	FUTURE PROVISION
AEF BOARD	JW1 x	IN	VCA INPUT LEFT DIRECTS PREVIEW (SOLO) BUS
	JW2 x	IN	VCA INPUT RIGHT DIRECTS SOLO (PREVIEW) BUS
	JW3 x	OUT	BALANCED VCA OUTPUT LEFT DIRECTS SOLO (PREVIEW)
	JW4 x	OUT	BALANCED VCA OUTPUT RIGHT DIRECTS SOLO (PREVIEW)

x EDITOR RELATED JUMPER
* IN WITH MXBK-EI22 ONLY
** IN WITH MXBK-EI21 ONLY

Table 2-5. Stereo Input/Output Module Jumper Information

	JUMPER	FACTORY CONDITION	FUNCTION
GRM BOARD	JW3	IN	GROUP UNMUTED AT POWER UP
	JW4	OUT	GROUP MUTED AT POWER UP
	JW5	IN	GROUP UNMUTED AT POWER UP
	JW6	OUT	GROUP MUTED AT POWER UP
	JW7	IN	GROUP INPUT FED TO DYNAMICS MODULE
	JW8	OUT	GROUP POST EQ FED TO DYNIMCS MODULE
	JW21	IN	GROUP POST EQ TO AUDIO FADER
	JW22	OUT	GROUP POST VCA TO FADER
	JW23	OUT	GROUP POST FADER TO GROUP PATCH SEND
	JW24	OUT	GROUP VCA INPUT IS POST AUDIO FADER
	JW25	IN	GROUP FADER INPUT TO 2-MIX SEND (VCA SWITCH)
	JW26	OUT	GROUP POST VCA TO 2-MIX SEND (VCA SWITCH)
	JW28	IN	GROUP MUTE SWITCH MUTES GROUP AUDIO
	JW29	IN	GROUP MUTE SWITCH MUTES 2-MIX SEND (VCA SWITCH)
	JW30	OUT	DISABLES MUTE SWITCH TO 2-MIX SEND (VCA SWITCH)
		——— **GROUP 1 MODULE** ———	
	JW9	IN	GROUP 1 INPUT ASSIGNMENT
	JW13	IN	GROUP 1 METER ASSIGNMENT
	JW17	IN	GROUP 1 TO VCA GROUP 1
	JW52 x	OUT	EDITOR MUTE TO GROUP 1
	JW56 x	OUT	VIDEO TAPE MONITOR TO GROUP 1
		——— **GROUP 2 MODULE** ———	
	JW10	IN	GROUP 2 INPUT ASSIGNMENT
	JW14	IN	GROUP 2 METER ASSIGNMENT
	JW18	IN	GROUP 2 TO VCA GROUP 2
	JW51 x	OUT	EDITOR MUTE TO GROUP 2
	JW55 x	OUT	VIDEO TAPE MONITOR TO GROUP 2
		——— **GROUP 3 MODULE** ———	
	JW11	IN	GROUP 3 INPUT ASSIGNMENT
	JW15	IN	GROUP 3 METER ASSIGNMENT
	JW19	IN	GROUP 3 TO VCA GROUP 3
	JW50 x	OUT	EDITOR MUTE TO GROUP 3
	JW54 x	OUT	VIDEO TAPE MONITOR TO GROUP 3
		——— **GROUP 4 MODULE** ———	
	JW12	IN	GROUP 4 INPUT ASSIGNMENT
	JW16	IN	GROUP 4 METER ASSIGNMENT
	JW20	IN	GROUP 4 TO VCA GROUP 4
	JW49 x	OUT	EDITOR MUTE TO GROUP 4
	JW53 x	OUT	VIDEO TAPE MONITOR TO GROUP 4

x EDITOR RELATED JUMPER

Table 2-6 (1 of 2). Group Module Jumper Information

	JUMPER	FACTORY CONDITION	FUNCTION
GRM BOARD	JW31	IN	GROUP VCA IS POST EQ
	JW34	OUT	GROUP POST FADER TO POST VCA
	JW37	OUT	GROUP POST VCA TO SOLO (PREVIEW) RIGHT BUS
	JW38	IN	GROUP PANNED POST TO SOLO (PREVIEW) RIGHT BUS
	JW39	OUT	GROUP POST VCA TO SOLO (PREVIEW) LEFT BUS
	JW40	IN	GROUP PANNED POST TO SOLO (PREVIEW) LEFT BUS
	JW42	IN	GND REFERENCE FOR VCA GROUP INPUT
	JW46 x	IN	GROUPS 1 AND 2 ADDRESS SETTING FOR PAL (GROUP 1 AND GROUP 2 MODULES)
	JW47 x	IN	GROUPS 2 AND 4 ADDRESS SETTING FOR PAL (GROUP 2 AND GROUP 4 MODULES)
	JW48 x	IN	GROUP 3 ADDRESS SETTING FOR PAL (GROUP 3 MODULE)
	JW57 x	IN	VCA UNITY GAIN FOR DEPTH OF FADE
	JW58 x	OUT	VCA +12dB GAIN FOR DEPTH OF FADE
	JW59 x	IN	DISABLES LOCAL SWITCH ***
	JW61 x	*	{EI-22} VCA CONTROL OF DEPTH OF FADE
	JW62 x	*	{EI-21) VCA CONTROL INPUT TO GAIN SET
	JW63 x	**	{EI-21) VCA CONTROL OF DEPTH OF FADE
	JW64 x	**	{EI-22} EDITOR SOLO (PREVIEW) COMMAND TO GROUP
	JW65 x	OUT	SEE PARAGRAPH 2.5.3.16

x EDITOR RELATED JUMPER
* IN WITH MXBK-EI22 ONLY
** IN WITH MXBK-EI21 ONLY
*** OUT WITH MXBK-EI22

Table 2-6 (2 of 2). Group Module Jumper Information

	JUMPER	FACTORY CONDITION	FUNCTION
SMM BOARD	JW1	OUT	AUTOMATIC MUTE ENABLED
	JW2	IN	AUTOMATIC MUTE DISABLED
	JW3	OUT	DIRECTS MIX B LEFT TO MONO SUMMING
	JW4	IN	DIRECTS MIX A LEFT TO MONO SUMMING
	JW5	OUT	DIRECTS MIX B RIGHT TO MONO SUMMING
	JW6	IN	DIRECTS MIX A RIGHT TO MONO SUMMING
	JW7	OUT	MIX B LEFT DERIVED FROM POST VCA
	JW8	IN	MIX B LEFT DERIVED FROM PRE VCA
	JW9	OUT	MIX B RIGHT DERIVED FROM POST VCA
	JW10	IN	MIX B RIGHT DERIVED FROM PRE VCA
	JW11	IN	MONO, STEREO AND GROUP POWER UP RESET
	JW12	IN	LEFT CHANNEL FED FROM MIX LEFT BUS
	JW13	OUT	LEFT CHANNEL FED FROM GROUP 1 BUS
	JW14	OUT	LEFT CHANNEL FED FROM GROUP 3 BUS
	JW15	IN	RIGHT CHANNEL FED FROM MIX RIGHT BUS
	JW16	OUT	RIGHT CHANNEL FED FROM GROUP 4 BUS
	JW17	OUT	RIGHT CHANNEL FED FROM GROUP 2 BUS

Table 2-7. Master Module Jumper Information

	JUMPER	FACTORY CONDITION	FUNCTION
TVM BOARD	JW11	IN	MONITOR MUTE LEFT ENABLE
	JW12	IN	MONITOR MUTE RIGHT ENABLE
	JW13	OUT	MONO METERING ON BOTH METERS
	JW14	IN	MONO METERING ON LEFT METER ONLY
	JW15	IN	MUTE SWITCH MUTES MONITOR AND STUDIO
	JW16	IN	LOW IMPEDANCE HEADPHONE RIGHT MATCHING
	JW17	IN	LOW IMPEDANCE HEADPHONE LEFT MATCHING
	JW18 x	*	VIDEO TAPE MUTE LEFT ENABLE
	JW19 x	*	VIDEO TAPE MUTE RIGHT ENABLE
	JW20 x	*	VIDEO TAPE MONITOR LEFT ENABLE
	JW21 x	*	VIDEO TAPE MONITOR RIGHT ENABLE
	JW22 x	*	EDITOR BYPASS ENABLE
	JW23	OUT	NOT USED
	JW24 x	**	(SEE NOTE)
MML BOARD	JW1	OUT	MONITOR INDICATOR OFF WHEN UNMUTED
	JW2	IN	MONITOR INDICATOR ON WHEN UNMUTED
	JW3	IN	AUTO MUTE INDICATOR ON WHEN AUTO MUTE ACTIVATED
	JW4	OUT	AUTO MUTE INDICATOR OFF WHEN AUTO MUTE ACTIVATED
	JW5 x	OUT	BYPASS INDICATOR OFF WHEN EDITOR BYPASS ACTIVATED
	JW6 x	IN	BYPASS INDICATOR ON WHEN EDITOR BYPASS ACTIVATED
	JW7,JW10	***	(SEE NOTE)
	JW8,JW9	****	(SEE NOTE)

x EDITOR RELATED JUMPER
* IN WITH AN EDITOR ONLY
** USED WITH AN EDITOR ONLY: IN IF EDITING IN FREE RECORDER ASSIGNMENT MODE, OUT IF EDITING IN FIXED RECORDER ASSIGNMENT MODE
*** OUT TO SET CONDITIONS: POWER UP WITH MONITOR UNMUTED, EDITOR NOT BYPASSED, AUTO MUTE ON
**** IN TO SET CONDITIONS: POWER UP WITH MONITOR MUTED, EDITOR BYPASSED, AUTO MUTE OFF

Table 2-8. Monitor Module Jumper Information

	JUMPER	FACTORY CONDITION	FUNCTION
NIF BOARD	JW1,JW5,JW6	x *	OPERATING MODE: FREE RECORDER ASSIGNMENT, PARALLEL
	JW1,JW2,JW5, JW6	x *	OPERATING MODE: FREE RECORDER ASSIGNMENT, BINARY
	JW1,JW2,JW3, JW5,JW6	x *	OPERATING MODE: FIXED RECORDER ASSIGNMENT
	JW7,JW8,JW9	OUT	NOT USED
	JW4	OUT	+5V FOR TEST FIXTURE ONLY

x EDITOR RELATED JUMPER
* CUSTOM CONFIGURED FOR USER

Table 2-9. MXBK-EI22 Editor Jumper Information

	JUMPER	FACTORY CONDITION	FUNCTION
EIC BOARD	CNJ1A - CNJ1H	IN	SEE PARAGRAPH 6.1.1
	CNJ2A - CNJ2H	IN	SEE PARAGRAPH 6.1.1

Table 2-10. MXBK-EI21 Editor Jumper Information

2.5.1 Input Module

2.5.1.1 Ground Reference Jumpers (JW1 through JW6)

Jumpers JW1 through JW6 select the ground references (audio ground or chassis ground) for the INPUT 1, INPUT 2 and LINE OUT signals. All consoles are shipped from the factory with the chassis ground jumpers, JW4, JW5 and JW6, installed. As a general rule, where the input signal is derived from a capacitor type microphone, the chassis ground jumpers should be removed and replaced with the audio ground jumpers, JW1, JW2 and JW3. For all other microphone types, chassis ground should be preferred.

The specific functions for jumpers JW1 through JW6 are listed below:

JW1	Connects the LINE OUT shield to audio ground
JW2	Connects INPUT 2 shield to audio ground
JW3	Connects INPUT 1 shield to audio ground
JW4	Connects the LINE OUT shield to chassis ground
JW5	Connects INPUT 2 shield to chassis ground
JW6	Connects INPUT 1 shield to chassis ground

CAUTION

WHEN AN AUDIO GROUND JUMPER IS INSTALLED, THE CORRESPONDING CHASSIS GROUND JUMPER MUST BE REMOVED, AND VICE-VERSA. HAVING BOTH JUMPERS INSTALLED CAN CREATE GROUND LOOPS, CAUSING EXCESSIVE SYSTEM NOISE.

2.5.1.2 Channel ON or OFF at Power-up (JW7 through JW10)

The Input modules can be programmed so as to be ON (unmuted) or OFF (muted) at power-up, the desired condition being established by JW7 through JW10.

Note: The Input module power-up conditions described here are controlled by a reset signal from the Master via the Input module's own JW32 (see paragraph 2.5.1.12). To achieve these conditions, the Master module must be in place, JW11 on the Master module must be installed, and JW32 on the Input module must be installed.

Consoles shipped from the factory have jumpers JW7 and JW9 installed, and this configuration causes the channel to be unmuted at power-up. Where it is desired to have the channel assume the muted condition at power-up, JW7 and JW9 should be removed, and JW8 and JW10 should be installed.

It is most important to note the following rules for these four jumpers:

a. Two, and ONLY two, jumpers may be installed in the four locations.
b. Where JW7 is installed, JW9 also must be installed, and vice-versa.
c. Where JW8 is installed, JW10 also must be installed, and vice-versa.
d. JW7 and JW8 should never be installed together, nor should JW9 and JW10.

CAUTION

ON SOME INPUT MODULES, PINS MAY BE PROVIDED FOR JUMPERS JW11 AND JW13. NO JUMPERS SHOULD EVER BE INSTALLED ON THESE PINS

2.5.1.3 Automatic PFL (JW15)

If so desired, those Input modules fitted with the optional Relay Card, **MXBK-RL21**, can be set up so that PFL (Pre-Fader Listening) is invoked automatically when the Fader is set to its full down position. To enable this function, JW15 must be installed. Conversely, where automatic PFL is not desired, JW15 should not be installed. JW15 is NOT installed in consoles shipped from the factory.

2.5.1.4 Output to Dynamics Module (JW16 and JW17)

Consoles are shipped from the factory with JW16 in place, this causing the pre-Equalizer signal to be fed to the Dynamics module when dynamic processing is selected. Where it is desired that the post-Equalizer signal be fed to the Dynamics module (when selected), JW16 should be removed, and JW17 should be installed.

It is important to note that, when JW17 is installed, the signal directed to the Dynamics module always is equalized, regardless of EQ switch setting. This feature allows the Dynamics module signal to be equalized without necessarily modifying the channel signal, and is particularly useful when creating special effects or in other similar situations.

2.5.1.5 Monitor Muting (JW18 through JW21)

Jumpers JW18 through JW21 are used, in conjunction with two external connections, to program MUTE A and/or MUTE B as required.

To enable MUTE A, an external connection must be made between pin 19 and pin 4 on the Input module's Input/Output connector. Similarly, to enable MUTE B, a connection must be made between pin 19 and pin 33 on the same connector. These links, together with JW18 through JW21 provide automatic muting when the Fader is moved up from the full down position, MUTE A becoming effective when INPUT 1 is selected and MUTE B becoming effective for INPUT 2.

Depending upon the jumpers used, MUTE A mutes the signals at the Control Room monitor (JW18 installed), at the Studio monitor (JW19 installed), or both monitors (JW 18 and JW19 installed). Similarly, MUTE B mutes the Control Room monitor (JW20), the Studio monitor (JW21) or both monitors (JW20 and JW21).

It should be noted that a manual control for MUTE A can be provided by connecting a switch, rather than a link, between Input/Output connector pins 19 and 4. Similarly, a switch connected between pins 19 and 33 provides a manual control for MUTE B.

2.5.1.6 Test Jumper (JW22)

This jumper is provided to enable certain service procedures, and must NOT be removed.

2.5.1.7 Gain Set Jumpers (JW23 and JW24)

Either of the jumpers JW23 or JW24 is used to connect the clamp (Depth-of- Fade) output to the Input module's VCA, the selected jumper setting the VCA gain relative to the clamp output. Only one of these two jumpers should be installed. Consoles shipped from the factory have JW23 installed to give unity gain so that the VCA gain directly reflects the clamped editor fader level.

If JW23 be removed and JW24 installed, the VCA gain is increased by a factor of +12 dB. It should be noted, however, that this arrangement is NOT recommended for current **MXP-2900** series consoles.

2.5.1.8 Up/down Arrow Jumpers (JW25 and JW26)

As is described in Section 3, the Fader up/down arrows provide a visible indication of the relative levels between the module's own Fader control and that from the Editor, the source for these indicators being selected by either JW25 or JW26. One or the other of these jumpers is installed in accordance with the Editor interface being used, JW25 being installed for Editor Interface **MXBK-EI22**, and JW26 for Editor Interface **MXBK-EI21**.

2.5.1.9 VCA Control Input Jumpers (JW27 through JW29)

During editing operations, the control input to the VCA can be derived from either of the Editor Interfaces, **MXBK-EI21** or **MXBK-EI22**. Additionally, control from the **MXBK-EI21** can be routed either directly or via the Depth-of-Fade circuitry. Jumpers JW27, JW28 and JW29 are used in selecting these various control paths.

When Editor Interface **MXBK-EI22** is being used, the control input to the Depth-of-Fade circuit is coupled via JW27. Where JW27 is installed, JW28 and JW29 must be removed.

With Editor Interface **MXBK-EI21**, JW28 connects the control input to the Depth-of-Fade circuit, and JW27 and JW29 must be removed.

If so required, with Editor Interface **MXBK-EI21**, the Depth-of-Fade circuit can be bypassed by installing JW29 and removing JW27 and JW28. It is extremely important to note that, where JW29 is installed, JW23 and JW24 also must be removed.

2.5.1.10 Solo (Preview) Command Jumper (JW30)

This jumper must be installed and JW32 must be removed where Editor Interface **MXBK-EI22** is being used.

2.5.1.11 Future Provision Jumper (JW31)

This jumper is provided to allow for a possible future provision. It should NOT be installed in current console versions.

2.5.1.12 Reset jumper (JW32)

As was stated in paragraph 2.5.1.10, JW32 must be removed when Editor Interface **MXBK-EI22** is used with the console. It should be noted that, with JW32 removed, the power-up status for the module, as described in paragraph 2.5.1.2, can no longer be guaranteed.

2.5.1.13 AEF Sub-board Jumpers

The signals placed on the Solo (Preview) buses during editor Solo (Preview) operations can be derived either directly from the module's VCA input or from the panned VCA output signal, the selection being made with jumpers JW1 through JW4 on the AEF sub-board. Where it is desired to direct the VCA input signal to the Solo (Preview) buses, jumpers JW1 and JW2 should be installed and JW3 and JW4 should be removed. Conversely, where the panned VCA output is required, JW3 and JW4 should be installed and JW1 and JW2 should be removed.

2.5.2 Stereo Input Module

2.5.2.1 Ground Reference Jumpers (JW1/JW2 and JW101/JW102)

CAUTION

WHEN AN AUDIO GROUND JUMPER IS INSTALLED, THE CORRESPONDING CHASSIS GROUND JUMPER MUST BE REMOVED, AND VICE-VERSA. HAVING BOTH JUMPERS INSTALLED CAN CREATE GROUND LOOPS, CAUSING EXCESSIVE SYSTEM NOISE.

Jumpers JW1/JW2 and JW101/JW102 select the ground references (audio ground or chassis ground) for the LINE OUT L and LINE OUT R cable shields. The specific functions for all four ground reference jumpers are listed below:

JW1	Connects the LINE OUT L shield to chassis ground.
JW2	Connects the LINE OUT L shield to audio ground.
JW101	Connects the LINE OUT R shield to chassis ground.
JW102	Connects the LINE OUT R shield to audio ground.

2.5.2.2 Automatic PFL (JW9)

If so desired, the Stereo Input module can be set up so that PFL (Pre-Fader Listening) is invoked automatically as the Fader is set to its full down position. To enable this function, JW9 should be installed. It should be noted that JW9 is NOT installed from the factory.

2.5.2.3 Channel ON or OFF at Power-up (JW14 through JW17)

The Stereo Input module can be programmed so as to be ON (unmuted) or OFF (muted) at power-up, the desired condition being established by JW14 through JW17.

Note: The Input module power-up conditions described here are controlled by a reset signal from the Master module and by the Stereo Input module's own JW105 (see paragraph 2.5.2.10). To achieve the stated conditions, the Master module must be in place, JWll on the Master module must be installed, and JW105 on the Stereo Input module must be installed.

Consoles shipped from the factory have jumpers JW15 and JW17 installed, and this configuration causes the channel to be unmuted at power-up. Where it is desired to have the channel assume the muted condition at power-up, JW15 and JW17 should be removed, and JW14 and JW16 should be installed.

It is most important to note the following rules for these four jumpers:

a. Two, and ONLY two, jumpers may be installed in the four locations.
b. Where JW15 is installed, JW17 also must be installed, and vice-versa.
c. Where JW14 is installed, JW16 also must be installed, and vice-versa.
d. JW14 and JW15 may never be installed together, nor may JW16 and JW17.

CAUTION

ON SOME STEREO INPUT MODULES, PINS MAY BE PROVIDED FOR JUMPERS JW10 AND JW13. NO JUMPERS SHOULD EVER BE INSTALLED ON THESE PINS

2.5.2.4 Test Jumpers (JW18 and JW19)

JW18 and JW19 are installed to enable certain test facilities. They should NOT be removed.

2.5.2.5 Up/down Arrow Jumpers (JW21 and JW22)

As is described in Section 3, the Editor up/down arrows provide a visible indication of the relative levels between editor fader and module Fader, the source for these indicators being selected by either JW21 or JW22. One or the other of these jumpers is installed in accordance with the Editor interface being used, JW22 being installed for Editor Interface **MXBK-EI22**, and JW21 for Editor Interface **MXBK-EI21**.

2.5.2.6 VCA Control Input Jumpers (JW23 through JW25)

During editing operations, the control input to the VCA can be derived from either of the Editor Interfaces, **MXBK-EI21** or **MXBK-EI22**. Additionally, control from the **MXBK-EI21** can be routed either directly or via the Depth-of-Fade circuitry. Jumpers JW23, JW24 and JW25 are used in selecting these various control paths.

When Editor Interface **MXBK-EI22** is being used, the control input to the Depth-of-Fade circuit is coupled via JW23. Where JW23 is installed, JW24 and JW25 must be removed.

With Editor Interface **MXBK-EI21**, JW24 connects the control input to the Depth-of-Fade circuit, and JW23 and JW25 must be removed.

If so required, with Editor Interface **MXBK-EI21**, the Depth-of-Fade circuit can be bypassed by installing JW25 and removing JW23 and JW24. It is extremely important to note that, where JW25 is installed, JW26 and JW27 also must be removed.

2.5.2.7 Gain Set Jumpers (JW26 and JW27)

Either of the jumpers JW26 or JW27 is used to connect the clamp (Depth-of- Fade) output to the Stereo Input module's VCA, the selected jumper setting the VCA gain relative to the clamp output. Only one of these two jumpers should be installed.

Consoles shipped from the factory have JW27 installed to give unity gain so that the VCA gain directly reflects the clamped editor fader level.

If JW27 is removed and JW26 installed, the VCA gain is increased by a factor of +12 dB. It should be noted, however, that this arrangement is NOT recommended for current **MXP-2900** series consoles.

2.5.2.8 Mono Summing Jumpers (JW28 through JW35)

In the standard factory configuration, JW28, JW29, JW34 and JW35 are installed on the STS sub-board. With this arrangement, selecting MIX on the Send Controls section (paragraph 3.7.3) directs the module's Channel signal to the Send 1 bus pair, and selecting MIX on the Channel Output section (paragraph 3.7.4) steers the Channel signal to the 2-Mix bus.

The alternative mono summing configuration can be set up by removing JW28, JW29, JW34 and JW35 and installing JW30, JW31, JW32 and JW33. Where this is done, the cap on the Send Controls section MIX switch must be removed, and replaced by a switch cap labelled "MONO". (This item can be ordered as "BUTTON, RECT. DK GRY, MONO" Part No. T-9452-528-0.)

In this alternative configuration, the Send 1 signal is permanently connected to the Send 1 bus pair and, as will be described in Section 3, paragraph 3.8.4, the 2-Mix bus pair can be supplied with either the Channel stereo signal, or its mono sum.

2.5.2.9 Solo (Preview) Command Jumpers (JW104 and JW107)

These jumpers must be installed and JW105 must be removed where Editor Interface **MXBK-EI22** is being used.

2.5.2.10 Reset Jumper (JW105)

As was stated in paragraph 2.5.2.9, JW105 must be removed when Editor Interface **MXBK-EI22** is used with the console. It should be noted that, with JW105 removed, the power-up status for the module, as described in paragraph 2.5.2.3, cannot be guaranteed.

2.5.2.11 Future Provision Jumper (JW106)

This jumper is provided to allow for a possible future provision. It should NOT be installed in current console versions.

2.5.2.12 AEF Sub-board Jumpers (JW1 through JW4)

The signals placed on the Solo (Preview) buses during Editor Solo (Preview) operations can be derived either directly from the module's VCA inputs or from the balanced VCA outputs, the selection being made with jumpers on the AEF sub-board.

Where it is desired to direct the VCA input signal to the Solo (Preview) buses, Jumpers JW1 and JW2 should be installed and JW3 and JW4 should be removed. Conversely, where the balanced VCA output is required for delivery to the Solo (Preview) bus, JW3 and JW4 should be installed and JW1 and JW2 should be removed.

2.5.3 Group Module

Many of the Group module jumpers are used to direct signals that are derived from various different points in the module. As an aid to the following discussions, informal labels have been assigned to these different signals, and these are defined below.

Post-EQ audio–is derived directly from the Equalizer outpoint. This label remains valid even when the Equalizer is not activated.

Post-Fader audio–is derived directly from the Audio Fader's wiper arm.

Post-VCA audio–is the direct output from the Voltage-Controlled Amplifier

2.5.3.1 Channel ON or OFF at Power-up (JW3 through JW6)

The Group modules can be programmed so as to be ON (unmuted) or OFF (muted) at power-up, the desired condition being established by JW3 through JW6.

Note: The Input module power-up conditions described here are controlled by a reset signal from the Master module and by the Group module's own JW65 (see paragraph 2.5.3.16). To achieve the stated conditions, the Master module must be in place, JWll on the Master module must be installed, and JW65 on the Group module must be installed.

Consoles shipped from the factory have jumpers JW3 and JW5 installed, and this configuration causes the channel to be unmuted at power-up. Where it is desired to have the channel assume a muted condition at power-up, JW3 and JW5 should be removed, and JW4 and JW6 should be installed.

It is most important to note the following rules for these four jumpers:

a. Two, and ONLY two, jumpers may be installed in the four locations.
b. Where JW4 is installed, JW6 also must be installed, and vice-versa.
c. Where JW3 is installed, JW5 also must be installed, and vice-versa.
d. JW3 and JW4 should never be installed together, nor should JW5 and JW6.

2.5.3.2 Output to Dynamics Module (JW7 and JW8)

The output from the Group module to the selected Dynamics module channel can be from either the Group input ACN (Active Combining Network) or the post-EQ signal, selection being made by installing either JW7 or JW8.

Consoles are shipped from the factory with JW7 in place, causing the Group input to be fed to the Dynamics module. Where it is desired to feed the Dynamics module with post-EQ audio, JW7 must be removed and JW8 installed. It is important to note that JW7 and JW8 must NOT be installed together.

2.5.3.3 Group Assignment Jumpers (JW9 through JW20, JW46 through JW48, and JW49 through JW56)

All of the Group modules are identical, and their assignments as GROUP 1, GROUP 2, etc., are defined by means of jumpers JW9 through JW20. Similarly, the Mute

GROUP NUMBER	INSTALL JUMPERS			
	GROUP IDENT	MUTE	MONITOR	ADDRESS
GP1	JW 9, JW13, JW17	JW52	JW56	JW46
GP2	JW10, JW14, JW18	JW51	JW55	JW47
GP3	JW11, JW15, JW19	JW50	JW54	JW48
GP4	JW12, JW16, JW20	JW49	JW53	JW46, JW47

Table 2-11. Group Assignment Jumpers

inputs for each Group are assigned with JW49 through JW52 and the VT Monitor (Editor Preview) inputs are assigned by JW53 through JW56. Finally, jumpers JW46 through JW48 supply three addressing inputs (binary format) for the Mute and VT Monitor program chip. Table 2-11 lists the appropriate jumpers which must be installed in each Group module.

2.5.3.4 Signals to Audio Fader (JW21 and JW22)

The signal applied to the Audio Fader can be either post-EQ or post-VCA audio, selection being made by means of JW21 or JW22. It is important to note that these two jumpers must not be installed together.

Consoles are shipped from the factory with JW21 installed, this causing the post-EQ signal to be directed to the Audio Fader. Where it is desired to feed the post-VCA signal to the Audio Fader, JW21 should be removed, and JW22 installed.

2.5.3.5 PATCH SEND (JW23 and JW34)

The GP PATCH SEND signal can be derived from post-EQ or post-Fader audio, depending upon the installation of either JW23 or JW34. Only one of these two jumpers should be installed.

JW34 is factory installed. Where it is desired to feed the post-Fader signal to the GP PATCH SEND, JW23 should be installed, while for the post-VCA signal JW34 should be used.

2.5.3.6 VCA Inputs (JW24 and JW31)

The input to the Group module VCA can be either post-EQ or post-Fader audio. Where post-EQ audio is desired, JW31 should be installed, and where post-Fader audio is desired, JW24 should be installed. These two jumpers must not be installed together.

2.5.3.7 2-Mix Send in VCA Mode (JW25 and JW26)

When VCA mode is selected, the output to the 2-Mix Send is assigned via jumpers JW25 or JW26, and can be either the Fader input signal or post-VCA audio. (As already has been described in paragraph 2.5.3.4, the Fader input can be either post-EQ or post-VCA audio.)

Where JW25 is installed, the Fader input signal will be supplied to the 2-Mix Send. Where JW26 is installed, post-VCA audio will be supplied.

2.5.3.8 Group Muting (JW28)

Consoles are shipped from the factory with JW28 installed, and this allows the Group audio channel to be muted by means of the Group Mute switch. Where it is desired to eliminate this function, JW28 should be removed.

2.5.3.9 2-Mix Send Muting (JW29 and JW30)

In VCA mode, the 2-Mix Send output can be arranged so as to be controlled by the Group Mute switch. Consoles shipped from the factory have JW29 installed, this causing the 2-Mix Send signal to become muted when the Group Mute switch is selected.

If it is desired to disable this muting function, JW29 should be removed and JW30 installed.

2.5.3.10 Solo (Preview) Bus Signals (JW37 through JW40)

Jumpers JW37 through JW40 are used to select between mono post-VCA audio or panned Group Left and Group Right signals for delivery to the Solo (Preview) Left and Solo (Preview) Right buses. Only two of these jumpers may be installed, and these should be either both odd-numbered (JW37 and JW39) or both even-numbered (JW38 and JW40) jumpers. The standard arrangement from the factory incorporates JW38 and JW40, and these feed the Group Left and Group Right signals to the buses. Where it is desired to feed post-VCA audio to the buses, JW38 and JW40 should be removed, and JW37 and JW39 installed.

2.5.3.11 Test Jumpers (JW41 and JW42)

JW41 and JW42 are included to enable certain test procedures. These two jumpers MUST NOT be removed.

2.5.3.12 Gain Set Jumpers (JW57 and JW58)

The fader (VCA control) input from the Editor Interface (**MXBK-EI21** or **MXBK-EI22**) can be connected to the VCA through either JW57 or JW58, the selected jumper setting the VCA gain relative to the module's Fader level. Only one of these two jumpers should be installed.

Consoles shipped from the factory have JW57 installed to give unity gain so that the VCA output directly reflects the editor's fader level.

If JW57 is removed and JW58 installed, the VCA gain is increased by a factor of +12 dB. It should be noted, however, that this arrangement is NOT recommended for current **MXP-2900** series consoles.

2.5.3.13 Editor Selection Jumper (JW59)

This jumper is used for steering Group module signals in accordance with the type of Editor Interface being used. For Editor Interface **MXBK-EI21**, or where no Editor Interface is used, JW59 should be installed. For Editor Interface **MXBK-EI22**, JW59 should be omitted.

2.5.3.14 VCA Control Input Jumpers (JW61 through JW63)

During editing operations, the control input to the VCA can be derived from either of the Editor Interfaces, **MXBK-EI21** or **MXBK-EI22**. Additionally, control from the **MXBK-EI21** can be routed either directly to the VCA or via the Gain Set jumpers (see paragraph 2.5.3.12). Jumpers JW61 through JW63 are used in selecting these various control paths.

When Editor Interface **MXBK-EI22** is being used, the control input to the VCA is coupled via JW61. Where JW61 is installed, JW62 and JW63 must be removed.

With Editor Interface **MXBK-EI21**, JW62 connects the control input via the Gain Set jumpers to the VCA. When JW62 is installed, JW61 and JW63 must be removed.

If so required, with Editor Interface **MXBK-EI21**, the Gain Set jumpers can be bypassed by installing JW63 and removing JW61 and JW62. It is extremely important to note that, where JW63 is installed, the Gain Set jumpers, JW57 and JW58 also must be removed.

2.5.3.15 Solo (Preview) Command Jumper (JW64)

This jumper must be installed and JW65 must be removed where Editor Interface **MXBK-EI22** is being used with the console.

2.5.3.16 Reset jumper (JW65)

As was stated in paragraph 2.5.3.15, JW65 must be removed when Editor Interface **MXBK-EI22** is used with the console. It should be noted that, with JW65 removed, the power-up status for the module, as described in paragraph 2.5.3.1, can no longer be guaranteed.

2.5.4 Master Module

2.5.4.1 Off-Air Muting (JW1 and JW2)

The Master module can be programmed so that the main output becomes muted automatically in modes other than ON AIR, i.e. when REH (Rehearse) is selected or when neither REH or ON AIR is activated.

Consoles are shipped from the factory with JW2 in place so that this automatic muting function is NOT enabled. Where it is desired to activate automatic off-air muting, JW2 should be removed, and JW1 installed.

2.5.4.2 MONO Outputs (JW3 through JW6)

The signals used to create the MONO output can be derived from either one of the separated A or B mixes, selection being made by means of jumpers JW3 through JW6. Of these, two, and only two, may be installed, and these should be either both even-numbered (JW4 and JW6) or both odd-numbered (JW3 and JW5) jumpers.

Consoles shipped from the factory have JW4 and JW6 installed, and these direct MIX A to the MONO summing circuit. Where it is desired to use MIX B for the MONO output, JW4 and JW6 should be removed, and JW3 and JW5 installed.

2.5.4.3 MIX B Output (JW7 through JW10)

The MIX B output can be derived from either pre- or post-VCA audio, this selection being made with jumpers JW7 through JW10. Of these four jumpers, two, and only two, may be installed, and these should be either both even-numbered (JW8 and JW10) or both odd-numbered (JW7 and JW9) jumpers.

JW8 and JW10 are installed at the factory, these causing the pre-VCA signal to be directed to the MIX B output. If it is desired to use post-VCA audio, JW8 and JW10 should be removed, and JW7 and JW9 should be installed.

FOR ACN INPUTS FROM	JW12	JW13	JW14	JW15	JW16	JW17
MIX BUSES*	X	—	—	X	—	—
GP1 AND GP2 BUSES	—	X	—	—	X	—
GP3 AND GP4 BUSES	—	—	X	—	—	X

* = Factory Setting X = Jumper installed — = Jumper NOT installed

Table 2-12. ACN Input Jumpers

2.5.4.4 Reset Jumper (JW11)

The reset that initiates the power-up status for the channel (Input, Stereo Input and Group) modules (see paragraphs 2.5.1.2, 2.5.2.3 and 2.5.3.1) is generated in the Master module only when JW11 is in place. For manual (non-automated) console operations, this jumper must NOT be removed, since it will cause power-up conditions in the channel modules to become random.

2.5.4.5 Left and Right ACN Inputs (JW12 through JW17)

Inputs to the left and right channel ACN's (Active Combining Networks) can be taken from the MIX L and MIX R buses or from the GROUP buses, depending upon the disposition of JW12 through JW17. It is most important to note that this programming option is NOT permissible when Group modules are installed in the console.

Of these six jumpers, two, and only two, may be installed, one for the left channel, and one for the right. The left channel can be fed from the MIX L bus (JW12), the GROUP 1 bus (JW13) or the Group 3 bus (JW14). Similarly, the right channel can be fed from the MIX R bus (JW15), the GROUP 2 bus (JW16) or the Group 4 bus (JW17). Table 2-12 synopsizes the jumpers required to obtain the desired inputs to the ACN buses.

2.5.5 Monitor Module

Monitor module jumpers JW1 through JW10 are mounted on the Monitor Module Logic (MML) sub-board, while the remaining jumpers (JW11 through JW21) are mounted on the main module.

2.5.5.1 MON (Monitor) Indicator (JW1 and JW2)

The MON indicator can be programmed so as to be either illuminated or extinguished when the Monitor is unmuted. Consoles from the factory have JW2 installed, this causing the indicator to become illuminated when the Monitor is unmuted. If it is desired to have the indicator extinguished in the unmuted condition, JW2 should be removed, and JW1 installed.

2.5.5.2 AUTO MUTE Indicator (JW3 and JW4)

The AUTO MUTE indicator can be set up so as to be either illuminated or extinguished when automatic muting is in effect. (This function is used only in conjunction with the Editor Interface.)

Consoles are shipped from the factory with JW3 in place, and this causes the AUTO MUTE indicator to become illuminated when automatic muting is activated. Where it is desired to have the indicator extinguished when such muting is in effect, JW3 should be removed, and JW4 installed.

2.5.5.3 BYPASS Indicator (JW5 and JW6)

The BYPASS indicator also is used only with the Editor Interface, and can be either illuminated or extinguished to show that editor control is bypassed. Factory-programmed consoles have JW6 installed so that the indicator is illuminated when the editor is bypassed. If it is desired to have the indicator extinguished to show this state, JW6 should be removed and JW5 installed.

2.5.5.4 Power-up Status (JW7 through JW10)

The Monitor module can be programmed so as to assume either one of two states at power-up, these being:

a. Monitor unmuted, Editor NOT bypassed and AUTO MUTE on, or
b. Monitor muted, Editor bypassed and AUTO MUTE off

The power-up status is programmed by means of JW7 through JW10. Where JW7 and JW10 are installed, condition a. will prevail at power-up. Conversely, where JW8 and JW9 are installed (factory setting), condition b. will prevail.

2.5.5.5 Control Room Monitor Muting/Dimming (JW11 and JW12)

The Control Room monitors can be arranged so as to be either dimmed (partially muted) or fully suppressed when Monitor muting is in effect, this being accomplished with jumpers JW11 and JW12. If full muting is desired, JW11 and JW12 should be installed (factory setting). If dimming is required rather than full muting, JW11 and JW12 should be removed.

2.5.5.6 MONO Metering (JW13 and JW14)

The MONO signal level can be displayed either on the LEFT channel meter only or on both LEFT and RIGHT channel meters, selection being made by installing either JW13 or JW14.

Where it is desired to have indications on the LEFT meter only, JW14 should be installed (factory setting). For indications on both meters, JW14 should be removed and JW13 installed.

2.5.5.7 Monitor Muting (JW15)

In the standard factory configuration (JW15 installed), the MON switch can be used to mute/unmute the monitors in both the Studio and the Control Room. If so desired, the Monitor module can be reprogrammed so that only the Control Room monitors respond to MON switch muting, this being accomplished by simply removing JW15.

2.5.5.8 Headphone Impedance Matching (JW16 and JW17)

Jumpers JW16 and JW17 provide impedance matching for the headphones inserted into the Monitor module's HEADPHONE jack. In cases where low impedance headphones (typically 100 ohms or less) are used, JW16 and JW17 should be removed. For headphones with greater impedances, the jumpers should be left in place.

It should be noted that the need to remove JW16 and JW17 is usually indicated by excessive distortion in the headphone audio.

2.5.5.9 Preview and Mute Enabling Jumpers (JW18 through JW21)

Jumpers JW18 through JW21 are installed where it is required to have Preview (VT MON) and Mute signals from the Editor Interface coupled in to the Monitor module. The appropriate jumpers for each available input are listed in Table 2-13.

SIGNAL	ENABLING JUMPER
VT MUTE LEFT	JW18
VT MUTE RIGHT	JW19
VT MON 1	JW20
VT MON 2	JW21

Table 2-13. VT Monitor and Mute Enabling Jumpers

2.5.5.10 Editor Applicable Jumpers (JW22, JW24)

CAUTION

JUMPERS JW22 AND JW24 INSTALLED WILL CAUSE IMPROPER OPERATION

Consoles with an Editor Interface, when shipped from the factory, have jumpers JW22 and/or JW24 installed on the Monitor Module main board. JW22 is installed if the console is equipped with either the **MXBK-EI21** or the **MXBK-EI22** Editor Interface. JW24 is installed if the console has interface **MXBK-EI22**. JW24 is not used with **MXBK-EI21.**

Early versions of the board do not have JW22 and JW24 jumper blocks but do have the jumpers hardwired on the solder side as shown in Appendix A. Later versions of the board have a JW22 jumper block but JW24 is hardwired. The latest version is equipped with JW22 and JW24 jumper blocks.

Jumpers JW22 and JW24 must be removed for all non-edit related operations. These jumpers are required only when a console is integrated in an edit system. For **MXBK-EI21** or **MXBK-EI22** equipped consoles, JW22 enables the bypass function which allows the operator to manually override editor control of the console. For **MXBK-EI22** equipped consoles, JW24 allows simultaneous monitoring of LINE OUT and preview signals.

Jumper JW22 is needed to intergrate an **MXBK-EI21** interface equipped console into an edit system. For an early version of the board that requires hardwiring, solder the jumper wire as shown in Appendix A. To integrate an **MXBK-EI22** interface equipped console into an edit system, JW22 and JW24 are needed. Refer to Appendix A for soldering information.

2.5.6 Meter Housing

MXP-2900 Series consoles shipped from the factory without Group modules have certain jumpers removed from the Meter Housing. As a result, where Group modules are installed at a later date, these jumpers need to be incorporated to activate the GROUP meters.

For consoles having VU meters, one (and only one) jumper must be installed on each of the Meter Input Boards. These boards are located in the Meter Housing, directly behind the GROUP meters. To enable VU meters, jumpers must be installed as follows:

GROUP 1 Meter/MIB 1	Install JW2 only
GROUP 2 Meter/MIB 2	Install JW1 only
GROUP 3 Meter/MIB 3	Install JW2 only
GROUP 4 Meter/MIB 4	Install JW1 only

In consoles having PPM meters, one (and only one) jumper must be installed on each of the Peak Program Meter Boards. These are located in the Meter Housing, directly behind the GROUP meters. To enable PPM meters, jumpers must be installed as follows:

GROUP 1 Meter/PPM 1	Install JW1 only
GROUP 2 Meter/PPM 2	Install JW2 only
GROUP 3 Meter/PPM 3	Install JW1 only
GROUP 4 Meter/PPM 4	Install JW2 only

The LEFT and RIGHT channel meters are also mounted in the Meter Housing. The jumpers must be installed for VU or peak meters, as follows:

VU meters:
LEFT — Install JW1 only
RIGHT – Install JW2 only

Peak Meters:
LEFT – Install JW2 only
RIGHT – Install JW1 only

2.6 EDITOR INTERFACES MXBK-EI21 and MXBK-EI22

Connection, installation and jumper details for **MXBK-EI21** are given in Section 6 and **MXBK-EI22** details are given in Section 7.

SECTION 3

CONTROLS AND INDICATORS

3.1 INTRODUCTION

This section of the manual describes the functions of all of the operating controls and indicators on the console's major modules and Meter Housing.

3.2 CONSOLE LAYOUT

The layouts of the MXP-2916, MXP-2926 and MXP-2936 consoles provide the greatest ease of operation together with maximum flexibility. The major modules can be installed in any frame location that the user may desire, thus allowing arrangements that suit working methods.

All meters and status annunciators for the console, together with a digital clock and the PFL (Pre-Fader Listening) speaker, are located on the Meter Housing at the rear of the main frame.

3.3 MODULE ASSEMBLIES

The seven major modules are illustrated in Section 1, Figure 1-3, and the Meter Housing is shown in Figure 3-1. All controls and indicators are arranged on the modules so that controls relating to a single function, or to several similar functions, are grouped together. Paragraphs 3.4 through 3.10 give detailed information on the controls, which are generally listed in accordance with the panel arrangements from top to bottom.

3.3.1 Panel Labels

Most of the controls and indicators on the module panels have specific labels, and the designations within this text duplicates the labels used on the panels. The functions of unlabelled controls usually are self-evident, either from their positioning on the panel or from other nearby labels. Within this text, the unlabelled controls are assigned names which are indicative of their functions, and these names are used consistently throughout the text.

3.3.2 Signal Definitions

In most of the following discussions, controls are described in terms of their effects on signals derived from different circuit areas. To avoid confusion, these signals are assigned specific names defined as follows:

Channel signal: The signal being processed in the module for eventual output to the Mono, 2-Mix, Group or Send buses. The Channel signal is derived from the panned (Input or Group module) or balanced (Stereo Input module) post-Fader signal.

Pre-Fader signal: The signal at the input to the module's VCA (Voltage Controlled amplifier).

Post-Fader signal: The signal at the VCA output terminal.

3.4 MASTER MODULE

The mandatory Master module provides all of the Master controls for the console's Send, mono and stereo outputs. The main console output, (designated Mix A) is output from this module. Depending upon the module's jumper configuration (see paragraph 2.5.4.5), its inputs can be derived either from the 2-Mix bus or from the Group buses.

3.4.1 AUX 3 Section

The AUX 3 (Auxiliary Mix 3) section contains only two controls; the Level Control and MUTE switch, both of which are used to control the Send 3 output. The functions of these controls are self-evident.

3.4.2 AUX 2 Section

The AUX 2 control section is identical to AUX 3, differing only in that the controls are applicable to Send 2.

3.4.3 AUX 1 Section

The AUX 1 section is similar to AUX 2 and AUX 3 in that it contains both a MUTE switch and Level Controls. The MUTE switch serves exactly the same function for stereo Send 1 as those in AUX 2 and 3 do for the mono Sends. However, since AUX 1 is a stereo Send, dual concentric level controls are necessary, the outer control for the left channel, and the inner control for the right.

3.4.4 Mix B Control

Immediately below the AUX 1 section are the SEP (Separate) switch and the ST.B (Stereo B) control, These are related to a secondary console output designated Mix B.

When SEP is NOT selected, the individually buffered Mix A and Mix B outputs are identical, and both are controlled by the Master Fader. However, when SEP is selected, the

ST.B level control becomes effective for Mix B. It should be noted that, where Master module jumpers JW8 and JW10 are in place (factory configuration), the Master Fader has no further control over Mix B once SEP is selected. If it is desired to have Mix B controlled by the Fader as well as ST.B, JW8 and JW10 should be replaced by JW7 and JW9.

3.4.5 Rehearsal/On Air

The Rehearsal/On Air section includes the REH, ON AIR and CLR (Clear) switches, and these are used to select between rehearsing and broadcast modes. When either mode is selected, the appropriate Meter Housing annunciator becomes illuminated to indicate that mode.

The On Air mode can be entered from either the Rehearsal mode or the reset state (i.e. where neither mode is selected), this being accomplished by simply pressing the ON AIR switch. However, it must be noted that Rehearsal mode can be entered only from the reset state, and CANNOT be entered directly from the On Air mode. Where it is desired to revert to Rehearsal mode from On Air, that mode must first be cleared by selecting both ON AIR and CLR simultaneously. However, to exit Rehearsal mode, only CLR need be selected.

3.4.6 Other Controls

The remaining controls on the Master module are the DYNAMIC thumbwheel switch and the Master Fader. The DYNAMIC switch is for use only in those consoles fitted with the optional Dynamics module, which can be used to process the Master module's output via one of its four compressor/limiter channels. Where such processing is selected, the DYNAMICS switch directs an audio sample to the Dynamics module, the selected compressor/ limiter channel being indicated in the small window directly to the left of the thumbwheel. For local operation (no Dynamics channel selected), the character L (Local) is displayed.

The Master Fader always controls the level of the Mix A signal, but Fader control of Mix B depends upon whether or not SEP is selected. Where SEP is not selected, Mix B is controlled by the Fader, and, where SEP is selected, Mix B is controlled by the ST.B rotary control. (See paragraph 3.4.4.)

3.5 MONITOR MODULE

The Monitor module also is mandatory to system operation, being used to control the routing of Monitor and meter outputs from the console. In addition to the external outputs, this module provides separate switching arrangements for the Control Room and Studio monitors, with level controls for the Control Room speakers, Control Room headphones, Studio headphones and the Solo (Preview) buses.

3.5.1 METER Section

The METER section of the panel incorporates four pushbutton switches, and these select the signals supplied to the LEFT and RIGHT meters in the Meter Housing. The switches are arranged mechanically so as to be mutually exclusive, i.e., selecting any switch automatically deselects the other three.

The signals selected via these switches are self-evident in the cases of MIX A and MIX B. The SEL (select) switch assigns the selected Control Room monitor signal (see paragraph 3.5.2) to the meters, and the Ø (Phase) switch can be selected when it is desired to monitor the relative phases of the left and right elements of the signal to the Control Room. This is done by adding 10 db of gain to these signals and then showing their sum on the LEFT meter and their difference on the RIGHT meter.

3.5.2 CONTROL ROOM Section

The CONTROL ROOM section includes ten selector switches for Control Room monitoring, a MONO summing switch, individual left channel and right channel muting switches, a Monitor Mute switch, and three level controls.

3.5.2.1 Level Controls

The three level controls in the Control Room section are used to adjust the Solo (Preview) listening level (SOLO), the volume at the Control Room Monitor speakers (MONITOR), and the level at the headphones jack 🎧.

3.5.2.2 Signal Selection

The ten pushbutton switches immediately below the SOLO level control select the signal to be supplied to the Control Room and they are mutually exclusive.

The four upper switches, each labelled EXT, select external inputs (EXT 1 through EXT 4), connected via pins 9 through 16 and 38 through 45 on the Monitor module's Input/Output connector at the rear of the console (see Section 2, Table 2-3, sheet 1).

Immediately below the EXT switches is the MONO switch, and this is used to direct the mono sum of the console output (derived from the Mix A left and right elements) to the Control Room monitor. It should be noted that this switch sums only the signal directed to the Control Room and does not affect the stereo signals to the 2-Mix bus or the Studio monitor.

The remaining five switches, MIX A, MIX B, S1 (Send 1), S2 and S3 are used to direct signals to the Control Room monitor in accordance with their labels.

3.5.2.3 Control Room Monitoring

The MONO switch located immediately below the S3 switch is used to create the mono sum of any signal that has been selected for routing to the Control Room monitor. It should not be confused with the Mix A mono summing switch described in paragraph 3.5.2.2.

The three muting switches in the CONTROL ROOM section are labelled MUTE L, MUTE R and MON (Monitor Mute). As their labels imply, MUTE L and MUTE R are used to mute the individual left or right elements of the signal to the Control Room speakers, the appropriate signal is muted when either switch is selected.

The MON (Monitor Mute) switch mutes the speakers in both the Control Room and the Studio. If so desired, the Monitor module configuration jumpers can be arranged so that the Studio speakers do not become muted when MON is selected (see Section 2, paragraph 2.5.5.7). In addition, the MON switch indicator can be programmed so as to become either illuminated or extinguished to show that muting is in effect (see paragraph 2.5.5.1).

3.5.3 STUDIO Section

The STUDIO section incorporates six Signal Selection switches and one level control. The two EXT switches direct the EXT 1 and EXT 2 signals from the Monitor module's Input/Output connector to the Studio monitor. Similarly the switches labelled S1, S2 and S3 direct the Send 1, Send 2 and Send 3 signals to the monitor. Finally, any signal that has been selected on the CONTROL ROOM section (paragraph 3.5.2.2) can be directed to the Studio Monitor by simply pressing the SEL (Select) switch.

The 🎧 control on the Studio section adjusts the level of the Interviewer and Guest headphone signals supplied to pins 2, 3, 17, 18, 31 and 32 on the Monitor module Input/Output connector. These signals are used for both sets of external headphone connections (see Section 2, Table 2-3, Sheet 1).

3.5.4 Other Controls

The remaining controls on the Monitor module are the BYPASS and AUTOMUTE switch/indicators. Both of these controls are associated with Editor Interface operations.

As its name indicates, the BYPASS switch is selected when it is desired to bypass the Editor Interface completely, and its indicator can be programmed to be either illuminated or extinguished when editor bypassing is in effect (see Section 2, paragraph 2.5.5.3). AUTOMUTE is used in conjunction with editor modes to mute automatically those Editor Interface channels which are not currently under Editor control. Its indicator also can be programmed (see paragraph 2.5.5.2) in the same manner as that for BYPASS.

3.5.5 HEADPHONES Jack

The HEADPHONES jack at the extreme lower end of the Monitor module panel provides a means of monitoring the Control Room, PFL and Communications signals, the audio level to the headset being adjusted with the 🎧 control on the CONTROL ROOM section of the panel.

3.6 COMMUNICATIONS MODULE

The Communications module provides talkback and communications facilities between the console and the Studio or such other destinations as may be desired by the user. This module also includes a Slate oscillator for Take marker generation, together with pink and white noise generators and a test oscillator, these being used for test and calibration purposes.

3.6.1 Console Microphone and Speaker

This section of the panel includes the built-in Talkback microphone and the CONSOLE SPEAKER control. The function of the Talkback microphone is self-evident. The CONSOLE SPEAKER control adjusts the volume at the Meter Housing loudspeaker.

3.6.2 OSCILLATOR Section

The OSCILLATOR section includes seven pushbutton switches and the the FREQ control. Of the seven switches, ON activates or de-activates the OSCILLATOR section (toggle operation), and the remainder select the Oscillator's function (noise or oscillator) and frequency multipliers. The six function/frequency switches are mutually exclusive, this precluding simultaneous selection of dissimilar functions.

The functions of the PINK and WHITE noise selection switches and the x1, x10 and x100 frequency multipliers are self-evident. IDNT (Identification) generates a two-tone "warble" signal which can be particularly useful for line identification when setting up outside broadcasts. The IDNT tone alternates between 1 khz and 2 khz at a rate of about two times per second.

FREQ is used, in conjunction with the X1, X10 and X100 multiplier switches, to set the Oscillator frequency between the limits 15 Hz to 15 kHz. The individual frequency ranges for the multipliers are 15 to 150 Hz (X1), 150 to 1500 Hz (X10) and 1.5 to 15 kHz (X100). The FREQ control is detented at the 1000 Hz (with X10 multiplier) point.

3.6.3 ASSIGNMENT Section

The switches in the ASSIGNMENT section direct the selected Oscillator signal to the various buses. These switches may be selected individually or simultaneously in any desired combination. ASSIGNMENT switch destinations are listed below:

GPS – All four Group buses
MIX – 2-Mix L and 2-Mix R buses
S1 – Send 1 bus pair
S2 – Send 2 bus
S3 – Send 3 bus

3.6.4 OSC LEVEL Control

OSC LEVEL adjusts the level of the selected Oscillator function, and has a control range from full suppression to +12 dB. The 0 dB reference point on the control is marked with a detent, and can be set to match the user's reference level.

3.6.5 TALKBACK SELECT Section

The TALKBACK SELECT section incorporates ten momentary contact switches which direct the Talkback audio to various destinations. These switches can be selected individually or simultaneously in any desired combination but, being momentary contact types, must be held down for as long as it is desired to maintain communication. The destinations for the TALKBACK SELECT switches are as follows:

SLATE – All four Group buses and both 2–Mix buses
AUX 1 – Send 1 bus pair
AUX 2 – Send 2 bus
AUX 3 – Send 3 bus
EXT – User-defined destinations (five lines)
STUDIO – Studio Monitor

3.7 INPUT MODULE

The monophonic Input module contains all of the steering circuits and level controls that may be required for mono signal processing. The outputs that are available from this module are: mono line, paired stereo, and three Send outputs (one stereo and two mono).

Pre-Fader or post-Fader audio can be selected, and can be directed to the 2-Mix bus, to any or all of the Send buses, to any one of four Group modules, or to the Dynamics module for further processing. Signals also can be directed to the PFL bus by either of the PFL and PSL switches.

3.7.1 Input/Direct Line Out Section

The Input/Direct Line Out section incorporates selector switches and level controls for two input signals and the Direct Line Out signals. As well as these, this section includes other switches which control various functions associated with the Input and Direct Line Out signals.

3.7.1.1 Input A/Input B Selection

The standard Input module incorporates one Microphone Input and one Line Input card. In this configuration, the cards are installed so that Input A is a microphone input and Input B is a line input, their selection switches being labelled MIC and LINE accordingly.

For other possible module configurations, i.e., two Microphone Input cards or two Line Input cards, units are shipped from the factory with these switches labelled MIC or LINE according to configuration. In all cases, the switch arrangement is such that the upper switch selects Input A and the lower switch selects Input B.

Both input selection switches have associated Input Level Trim controls, the control applicable to each input being indicated on the panel by means of an interconnecting line. These controls set the levels for both inputs.

As well as the selection switches and level controls, two other switches, PHAN (Phantom power) and PAD, are associated with microphone inputs. When, selected, PHAN supplies the phantom power (+48V) required where capacitive type microphones are used, the associated phantom power indicator becoming illuminated to show that PHAN has been selected. When PAD is selected, a fixed 20 dB attenuator is switched into the microphone input path. It should be noted that neither PHAN nor PAD is effective for Line Input cards.

Two other switches affecting the Input A/Input B signals are Ø (Phase) and PSL. Ø inverts the phase of the incoming signal (either line or microphone), while PSL directs the non-selected signal to the PFL bus. Thus, where Input A is activated, selecting PSL causes Input B to be placed on the PFL bus, thereby becoming audible in the PFL speaker.

3.7.1.2 Direct Line Out Controls

Four of the five remaining switches in the Input/Direct Line Out section are applicable to Direct Line Out operations. The Direct Line Out signals are available at the module's Input/Output connector on pins 9 (high), 38 (low) and 8 (shield).

The signals available for direct output are Input A (selected with MIC), Input B (selected with LINE), the Equalizer signal (selected with EQ), and the module's channel signal (selected with CHAN). The direct output level is adjusted by the Output Level Trim control, this being located just to the left of the LINE and EQ switches.

It is important to note that the EQ Direct Line Out signal is taken directly from the Equalizer output terminal, and is ALWAYS equalized, whether or not the Equalizer is selected (see paragraph 3.7.2). Because of this, it is possible to steer the equalized Direct Line Out signal to some remote facility while using the unequalized signal within the Channel.

The remaining switch in this section, labelled SOLO, is used to place the selected Direct Line Output on the Solo (Preview) bus.

3.7.2 Equalizer Section

This section of the panel incorporates two switches, three boost/cut controls, and one frequency control. Of the two switches, EQ activates the Equalizer and /‾ activates the high pass filter. This filter can be selected independently of the Equalizer, and has a cutoff frequency of 80 Hz at -3 dB, with a rolloff characteristic of 12 dB per octave.

The three boost/cut controls, HF (high frequency), MID (mid-frequency), and LF (low frequency) adjust the boost or cut in the appropriate sections of the band, while the Mid-Frequency Sweep control sets the Equalizer's mid-frequency between the limits 150 Hz to 5 kHz.

3.7.3 Send Controls Section

The Send Control section has three PRE switches and three level controls, each switch/control pair being associated with one Send. This section also includes a MIX switch and PAN control which are applicable only to Send 1.

Each of the PRE switches, when selected, is used to direct pre-Fader audio to the appropriate Send bus. Conversely, when PRE is NOT selected, post-Fader audio is supplied to the bus. In either case, the level control associated with the PRE switch sets the appropriate Send amplitude. The switch/control pairs and their applicable Sends are clearly indicated by the panel markings.

The PAN control and MIX switch are associated only with stereo Send 1. Where Send 1 is directed to any destination other than the 2-Mix bus, Send 1 PAN is used to pan the Send. However, when MIX is selected, Send 1 is directed to the 2-Mix bus and Send 1 PAN becomes ineffective, the Send to the 2-Mix bus then being panned by the Channel PAN control (located immediately below Send 1 PAN). In addition, when Send 1 is directed to 2-Mix, the Send 1 level control also becomes ineffective, and the Send 1 level to 2-Mix is controlled by the main Fader. It also should be noted that, where MIX and Send 1 PRE are selected simultaneously, the Channel signal overrides the pre-Fader signal.

3.7.4 Channel Output Section

This section provides signal-steering switches, their associated indicators, and a PAN control, all of which are applicable to the module's Channel signal.

The MIX, 1-2 and 3-4 switches direct the Channel signal to the buses appropriate to their labels, i.e. the 2-Mix bus, the Group 1-2 bus pair, and/or the Group 3-4 bus pair. When these switches are selected, their corresponding indicators, MIX, 1/2 and 3/4 become illuminated. It should be noted that, where Channel signals are directed to Group bus pairs, the left signal element is placed on the odd-numbered bus and the right element goes to the even-numbered bus.

As already has been mentioned (paragraph 3.7.3), the PAN control on the Channel Output section of the panel is used to pan the signal to the 2-Mix bus.

3.7.5 Other Controls and Indicators

The remaining controls on the Input module include four LED indicators, the Channel Mute switch, SOLO, VCA GP, DYNAMIC and PFL switches, the Channel Fader, two Editor controls, and the Fader up/down indicators.

Three of the four LED indicators, Ø, EQ, and PFL/SOLO become illuminated when their associated switches are selected, while the PK (Peak) indicator becomes illuminated to show that the channel's audio level is peaking at some specific level. The peaking level is set to +8 dB at the factory, but can be adjusted in accordance with the user's requirements.

It is important to note that optimum signal to noise ratio is obtained when the Input Level Trim control (paragraph 3.7.1.1) is set so that the PK indicator (if set to +8 dB) briefly flashes on as peaks occur in the program material. If this indicator illuminates too frequently, the input level should be reduced accordingly.

The Channel Mute switch mutes or unmutes (toggle operation) the module's outputs, its built-in indicator becoming extinguished when muting is in effect.

The SOLO switch directs the Channel signal to the Solo (Preview) bus to solo (preview) the module's output, while PFL directs the pre-Fader signal to the PFL bus and speaker. It should be noted that PFL is a momentary contact switch, and must be held down for as long as Pre-

Fader Listening is desired.
The VCA GP thumbwheel switch assigns control of the module's VCA (Voltage Controlled Amplifier) to one of the four optional Group modules, the selected module (1, 2, 3 or 4) being identified in the small display window immediately to the left of the thumbwheel. When control is assigned in this manner, the Channel signal is subject to control from the Fader on the selected Group module, as well as its own Fader. For Local operation (no Group assignment), the character L (Local) is displayed in the window, and no Group Fader control is available.

Where the Channel signal is to be subjected to Dynamics processing, the DYNAMIC thumbwheel switch directs a sample of the pre-Fader signal to one of the four compressor/limiter channels in the optional Dynamics module, the selected channel being identified in the display window. Where dynamic processing is not desired, the DYNAMIC switch should be set to L (Local).

The two controls associated with editor operations are the LOCAL switch and the recessed VO (Voice Over) control immediately below the PFL switch, these controls being effective only where the console is under editor control.

Where no editing operations are being performed, Local mode is activated by selecting (latched in full down position) the LOCAL switch. When LOCAL is NOT selected (unlatched in full up position), the edit mode prevails and the VCA control voltage from the editor is added algebraically to that from the module's own Fader. Thus, in editing mode, with the module's own Fader set to 0 dB, and the editor control level at -6 dB, the total attenuation for the Channel would be -6 dB.

The VO control adjusts the maximum depth of fade available from the editor, i.e., sets a limit to the maximum degree of editor attenuation, its overall range being from -3 dB to full suppression. The shaft for this control can be brought above the panel surface by simply pressing down on its end. After adjustment is completed, pressing the end of the shaft a second time causes it to return to the recessed position.

The fader up/down arrows become illuminated during Editor operations to show the relative levels between the editor control and that from the module's own Fader. Where the level from the editor is higher than that from the module Fader, the upper arrow is illuminated. Conversely, when the level from the editor is lower than that from the Fader, the lower arrow is illuminated. A condition in which both arrows are illuminated indicates that the two levels are equal.

3.8 STEREO INPUT MODULE

The Stereo Input module is a specialized version of the Input module, differing in that it accepts stereo inputs at line level. Except for the Input, Direct Line Out, and EQ sections, most of the controls and indicators on this module are similar to those on the Input module.

3.8.1 Input and Direct Line Out Selection

The Input selection controls differ widely from those on the Input module. A choice can be made between three stereo inputs, and provision is made for reversing the left and right stereo elements or directing either element into both left and right channels. Also, the signals available for Direct Line Output differ from those on the Input module.

3.8.1.1 Input Selection

Provision is made for selection between three stereo inputs, these being designated IP 1 (Input 1), IP 2 and IP 3. The Input Level trim control, which is located immediately below the IP 3 selector, adjusts the level of the selected input signal.

Depending upon the results desired, MONO L and MONO R can be selected separately or simultaneously. When MONO L is selected alone, the left stereo signal element is directed into both left and right channel paths, and the right signal element is suppressed. Similarly, when MONO R is selected, the right signal element is directed into both paths while the left element is suppressed.
When MONO L and MONO R are selected simultaneously, the paths for the left and right signal elements are reversed, i.e. the left element is fed to the right channel path, and vice versa.

The Ø switch inverts the phase of the signal in the left stereo channel. Thus, in normal operation (MONO L and MONO R not selected) the Phase switch inverts the left signal element.

3.8.1.2 Direct Line Out Selection

The four stereo signals that are available for delivery to the Direct Line Out are Input 1 (selected with IP 1), Input 2 (selected with IP 2), Input 3 (selected with IP 3), and the post-Fader signal (selected with CHAN). The Output Level Trim control (immediately to the left of the selection switches) sets the Direct Line Out signal level.

If so desired, the Direct Line Out signal can be soloed (previewed) by selecting the SOLO switch located immediately below the Output Level Trim control.
The Direct Line Out signal connections are made at the Input/Output connector with the left channel on pins 6, 20 and 35 and the right channel on pins 5, 19 and 34 (see Section 2, Table 2-3, Sheet 2).

3.8.2 Equalizer

The Stereo Input module Equalizer controls are similar to those described in paragraph 3.7.2 for the Input module, the major difference being that in the Stereo Input module the High Pass Filter switch is replaced by a second EQ switch, thus providing one switch for the left channel Equalizer and a second for the right channel.

Since this module handles stereo signals, the HF, LF, MID and Mid Frequency sweep controls are applicable to both left and right channels when both of the EQ switches are selected. If it desired to equalize only the left channel signal, the EQ switch at the left of the Mid Frequency sweep control should be selected. Similarly, if only the right channel is to be equalized, the EQ switch immediately above the mid-frequency boost/cut control should be selected.

3.8.3 Send Controls

In the standard factory configuration, the Send controls are similar to those described in paragraph 3.7.3 for the Input module, differing only in that the PAN control is replaced by a BAL (Balance) control. However, where the alternative mono summing jumpers are installed (see paragraph 2.5.2.8), the MIX switch is relabelled "MONO", and serves a different function.

As in the Input module, each PRE switch directs pre-Fader audio to the appropriate Send bus, the signal level being adjusted by the Send level control. However, it must be noted that, since Send 2 has only a single bus, its input must be the mono sum of the stereo signal. This also holds true for Send 3. In the standard factory configuration (JW28, JW29, JW34 and JW35 installed) the MIX switch functions in the same manner as that for the Input module, bypassing the PRE 1 switch and BAL control.

Where jumpers JW30, JW31, JW32 and JW33 are installed (paragraph 2.5.2.8), the MONO switch (labelled MIX in the standard configuration) derives the mono sum of the Channel signal before it is supplied to the 2-Mix left and right buses.

As already has been stated, the Stereo Input module has a BAL control rather than a PAN control, the difference being that the BAL control for the two-channel stereo signal needs only a limited range compared to the PAN control for the single-ended input.

3.8.4 Channel Outputs

In the standard factory configuration, except for the fact that BAL is used instead of PAN, the Channel Output controls on the Stereo Input module exactly duplicate those described in paragraph 3.7.4 for the Input module. However, where jumpers JW30, JW31, JW32 and JW33 are installed, the MIX switch on the Send Controls section supplies the Channel signal's mono sum to both the left and right 2-Mix buses when selected simultaneously with the MONO switch.

3.8.5 Other Controls and Indicators

With the exception of two of the indicators, the remaining controls are identical to those described for the Input module in paragraph 3.7.5.

The Phase and EQ indicators are replaced by the EQL (Left Equalizer) and EQR (Right Equalizer) indicators, these becoming illuminated in accordance with EQ switch selection.

3.9 GROUP MODULE

The optional Group module provides both audio and VCA grouping functions, and its signal processing and steering operations are similar to those provided for the Input module. In addition, the steering and level controls for one RETURN signal are located on the Group module, but it should be noted that this circuitry is not related to the grouping functions.

3.9.1 Return Controls

An incoming Return signal to Group module Input/Output connector pins 12 and 41 can be derived from a Send through some external processing unit, or it can be a completely independent input. One particularly useful application of the Returns is their ability to provide four monitor channels for use during video editing operations.

The Return section includes PAN and RETURN controls and five steering switches. After panning, the Return can be directed to the 2-Mix bus or to the the Group 1-2 and/or Group 3-4 bus pairs, its level being adjusted by the RETURN control. SOLO and PFL can be used either to solo (preview) the Return or direct it to the PFL bus.

As will be described in paragraph 3.9.2, the Group Equalizer can be switched into the Return path, if so required.

3.9.2 Equalizer

With the exception of the RET/GP switch, which is installed in place of the high pass filter switch, The Equalizer controls are exactly the same as those described for the Input module in paragraph 3.7.2.

RET/GP is used to switch the Equalizer into either the Group audio path or the Return path. When the switch is selected, the Equalizer is in the Group path; otherwise, it is in the Return path.

3.9.3 Send Controls

The Send controls on the Group module perform exactly the same functions as those described in paragraph 3.7.3 for the Input module.

3.9.4 Group Output Controls

The Group output controls comprise PAN and LEVEL controls whose functions are self-evident, together with the VCA (VCA grouping) switch. When channel (Input or Stereo Input) modules are assigned to a Group module for VCA grouping, the VCA switch on that Group module must be selected (latched in full down position) to activate the grouping function.

3.9.5 Other Controls and Indicators

The remaining Group module controls and indicators include four LED indicators, Editor up/down arrows the Group Mute switch, SOLO, LOCAL, DYNAMIC and PFL switches, and the Fader.

Of the four LED indicators, VCA, EQ and PFL/SOLO become illuminated to show that these functions have been selected, while PK performs the same service as does its counterpart on the Input module (see paragraph 3.7.5).

The Mute switch mutes/unmutes (toggle operation) the Group audio, its built-in indicator becoming extinguished when muting is in effect.

When selected, SOLO directs the Group audio to the Solo (Preview) bus. Similarly, PFL directs the Group audio to the PFL bus. The LOCAL switch and Editor up/down arrows perform the same functions as those described in paragraph 3.7.5 for the Input module, and the Fader is used to control the Group audio level.

3.10 DYNAMICS MODULE

The optional Dynamics module provides the console with four identical compressor/limiter channels, all having separate, adjustable thresholds. The module's panel is arranged in four sections (one for each individual compressor/limiter), the controls on each section including two ON switches, three LED indicators, four compressor controls, one limiter control, and one bar-graph indicator.

The two ON switches are used to activate the compressor (upper switch) and/or the limiter (lower switch), each of these switches having an associated LED indicator which becomes illuminated to show that the applicable switch has been selected.

The PEAK indicator becomes illuminated to show that the dynamics processor input level is exceeding the threshold set for the limiter, i.e. that limiting is occurring.

As their names imply, the ATTACK and RELEASE controls adjust the attack and release times for the compressor, the “F”, “N” and “S” labels indicating Fast, Normal and Slow.

The compressor THRESH (Threshold) control sets the level above which compressor reduction begins to become effective, this being adjustable between the limits -20 dB to +10 dB, while the RATIO control sets the compression ratio. Thus, where THRESH is set to -6 db and ratio is set to 4, then a signal at a level of 0 dB (6 dB above the threshold) becomes reduced to 1.5 dB (4:1 ratio) above the threshold, i.e. -4.5 dB. Compressor output can be determined from the formula:

Compressor Output (dB) = Threshold dB + (Input dB - Threshold dB)/Ratio

The limiter THRESH control sets the limiting level, its range being -12 dB to +12 dB. In an ideal limiter, the limiting ratio would be such that an infinitely great increase in the input level would result in a 1 dB level increase at the output, the limiting ratio in that case being infinity:1. In the **MXP-2900** console, the limiting ratio is factory-set to be 20:1. Thus, when the limiter is set to any given threshold point, the output signal increases by only 1 dB for every 20 dB of input above that threshold.

3.11 METER HOUSING

The Meter Housing (Figure 3-1) incorporates all of the console meters, six status annunciators, a digital clock, and the PFL speaker.

The four GROUP meters at the left side of the housing show the Group module output levels, while the LEFT and RIGHT meters at the center can monitor Mix A, Mix B, Control Room Monitor level or the Phase sum and difference, the desired signal being selected at the Monitor module, as described in paragraph 3.5.1.

The bar-graph indicators at the right of the LEFT and RIGHT meters monitor the levels on Send (AUX) buses 1L, 1R, 2 and 3 and on the PFL bus.

Six annunciators are arranged directly below the LEFT and RIGHT meters, these being labelled TB CALLING (Talkback Calling), REH (Rehearse), ON AIR, PFL/SOLO, CONTROL L.S. MUTE (Control Room Loudspeaker Mute) and STUDIO L.S. MUTE (Studio Loudspeaker Mute). The functions of these annunciators are self-evident, as are those

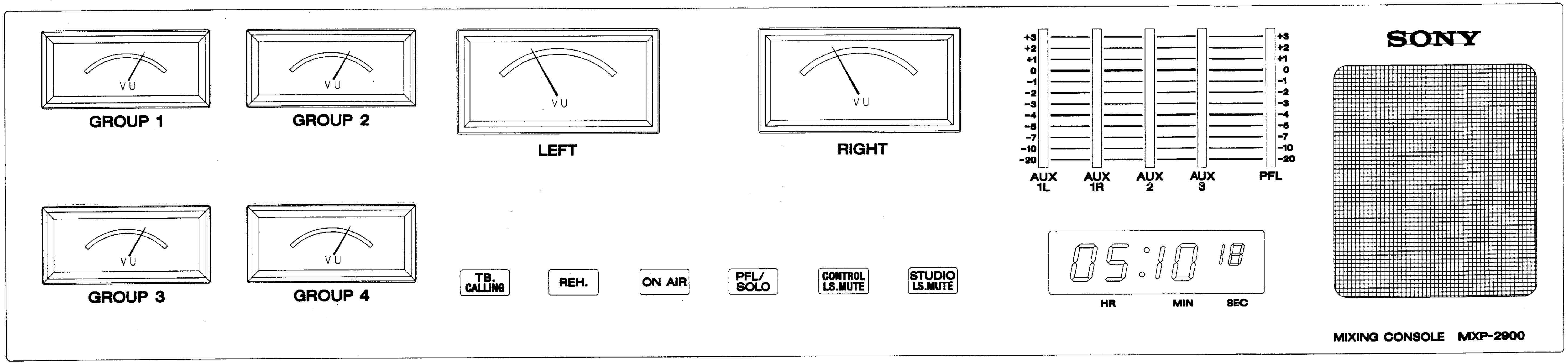

VU
GROUP 1
GROUP 2
LEFT
RIGHT
GROUP 3
GROUP 4
+3
+2
+1
0
−1
−2
−3
−4
−5
−7
−10
−20
AUX 1L
AUX 1R
AUX 2
AUX 3
PFL
SONY
TB. CALLING
REH.
ON AIR
PFL/ SOLO
CONTROL LS.MUTE
STUDIO LS.MUTE
05:10 18
HR
MIN
SEC
MIXING CONSOLE MXP-2900

Figure 3-1. Meter Housing

SECTION 4

OPERATIONS

4.1 INTRODUCTION

This section of the manual provides information relevant to MXP-2900 operations, outlining the methods used in selecting, processing and routing the console's input, output and communications signals. Operating information also is included for the optional Stereo Input, Group and Dynamics modules.

4.2 CONSOLE INPUTS

Inputs to the console can be derived from microphones or from external devices supplying signals at line level (nominally +4dBu). Either one of two inputs can be selected at the Input module and, depending upon module configuration, can be from two microphones, from two line level devices, or from one microphone input and one line level input. Where a console is fitted with standard Input modules, two of these modules must be used for stereo signal processing, the left stereo element being fed to one Input module and the right stereo element being fed to the other. Alternatively, for stereo inputs at line level, the optional Stereo Input module can accomodate both signal elements simultaneously.

In addition to the Input and Stereo input modules, those consoles which are fitted with optional Group modules are provided with separate Returns, each Group module incorporating one Return which accepts line level inputs.

4.2.1 Input Modules

The Input module's Input Selection switches and controls are situated at the top of the panel (see Figure 1-3). As already has been stated, the Input module has two-input capability, and these may be two microphone inputs, two line level inputs, or one microphone and one line input.

The Input Selection switches for the standard module are labelled MIC and LINE, the microphone input being designated Input A and the line input being designated Input B. In other Input module configurations, the switches are labelled in accordance with the input cards that are installed, i.e., two MIC switches or two LINE switches. It should be noted that, regardless of configuration, the upper switch always selects Input A while the lower selects Input B.

Connections to the Input modules are made via their Input/Output connectors at the rear of the console, Input A being on pins 15 (shield), 16 (high) 44 (shield) and 45 (low). It should be noted that the shields are internally connected to either chassis ground or audio ground, depending upon the arrangement of module jumpers JW1 through JW6. For further jumper details, see Section 2, paragraph 2.5.1.1.

When Input A is selected, the appropriate signal is fed to the Input module Channel path, its level being set by the upper Input Level control. Similarly, when Input 2 is selected, the signal to the Channel is adjusted by means of the lower Input Level Trim control.

NOTE: Provision is made for a patch send and return at pins 7 (send) and 36 (return) on the Input/Output connector, these connections providing a means of connecting an external device into the Channel path if so desired. Where no external device is connected, pins 7 and 36 must be jumpered together to complete the audio path.

Where inputs are derived from capacitor microphones, phantom power (+48 V) can be supplied to the microphone by selecting PHAN. It should be noted that this switch is ineffective where line inputs are used.

The PAD switch can be used, where required, to introduce a fixed 20 dB attenuator into the microphone input path. As with PHAN, this control has no effect upon line input signals.

Where it is desired to invert the phase of the input signal, Ø (Phase) can be selected.

Selecting PSL (Pre-Select Listening) allows the non-selected signal to be monitored in the PFL speaker,and can be most useful when setting the relative Input A and Input B signal levels. This momentary-contact switch must be held down for as long as it is desired to hear the non-selected signal.

4.2.2 Stereo Input Modules

The Stereo Input module is fitted with dual Line Input cards, and thus is capable of handling stereo inputs at line level. Provision is made in the module for selecting any one of up to three inputs.

Inputs to the module are connected via its Input/Output connector as follows:

Input 1 Right High pin 13	Input 1 Right Low pin 42
Input 1 Left High pin 16	Input 1 Left Low pin 45
Input 2 Right High pin 9	Input 2 Right Low pin 38
Input 2 Left High pin 10	Input 2 Left Low pin 39
Input 3 Right High pin 7	Input 3 Right Low pin 36
Input 3 Left High pin 8	Input 2 Left Low pin 37

The Input Selection controls at the top of the panel include three switches for input selection, together with a single Input Level Trim control. The switches are labelled IP1 (Input 1), IP2, and IP3, making their functions self-evident, while the Input Level Trim control is used to adjust the amplitude of the selected input.

As well as the input selectors, the MONO L (Mono left) and MONO R (Mono right) switches provide the means of either reversing the signal elements in the left and right channels or of directing a single element into both channel paths.

When MONO L alone is selected, the stereo signal's left element is directed into both left and right channel paths and the right element is suppressed. Similarly, when MONO R alone is selected, the right element is directed into both channel paths and the left element is suppressed. When both MONO L and MONO R are selected,the left signal element is directed to the right channel and the right element is directed to the left channel.

The remaining control on this section of the panel is the Ø switch, this being used to invert the phase of ONLY the signal in the left channel, thus changing the relative phases of the right and left channels.

4.2.3 Returns

Inputs to the Group module Return channels can be derived from any line level source, i.e., they can be either returns from external devices or completely independent signals. The controls for these inputs are located on the RETURN section at the top of the Group module panel, and consist of PAN and level controls together with five switches labelled 1-2, 3-4, MIX, SOLO and PFL.

The PAN control pans the Return signal, while the level control sets its amplitude. The three switches immediately to the right of the PAN control are used to direct the Return to the 2-Mix bus pair, to Group buses 1 and 2, or to Group buses 3 and 4.

The remaining switches, PFL and SOLO, direct the Return to the PFL bus or to the Solo (Preview) bus, in accordance with their labels. PFL and Solo (Preview) operations are more fully described in paragraphs 4.5.1 and 4.5.3.

4.3 CONSOLE OUTPUTS

The flexibility of the **MXP-2900** console is greatly enhanced by its multiple outputs, these offering a wide variety of operational advantages. The console outputs are described briefly in paragraphs 4.3.1 through 4.3.4.

4.3.1 Main Outputs

Mix A is considered to be the console's main output, and this usually is directed to the broad casting transmitter or to the master recorder in a recording studio. Mix B exactly duplicates Mix A, both being derived from the same 2-Mix bus, but provision is made for separate Mix B level adjustment should it be required. Both of these mixes are discussed below.

4.3.1.1 Mix A

The audio components comprising Mix A are derived from Input, Stereo Input and Group modules, all of these components being combined on the 2-Mix bus.

Each Input and Stereo Input module is provided with a MIX switch whose purpose it is to direct the module's Channel signal to the 2-Mix bus. As is shown in Figure 1-3, this switch is located just below the center of the control panel and to the right of the Channel PAN control (Input module) or the BAL control (Stereo Input module). When this switch is selected on any module, the Channel signal from that module becomes part of the 2-Mix.

In the Audio Grouping mode, the Group audio signal is placed directly on the 2-Mix bus without need for any switch selection. For further details on Audio Grouping, refer to paragraph 4.4.1.

Where a Return signal (paragraph 4.2.3) is to be added to Mix A, it is directed to the 2-Mix bus by selecting the MIX switch on the RETURN section at the top of the Group module panel.

The Mix A output from the console is connected via pins 11 (right high), 12 (left high), 40 (right low) and 41 (left low) on the Master module's Input/Output connector.

4.3.1.2 Mix B

Mix B exactly duplicates Mix A in all respects, but can be subjected to separate level control if so required. This provides a convenient means of supplying the broadcast material at a different level for use in recording or for any other required function. As a typical example, Mix B could be used to feed a recorder having a low-level input requirement.

Where it is desired to adjust Mix B independently, it must first be separated from Mix A by selecting the SEP (Separate) switch on the Master module (see Figure 1-3). Once this is accomplished, the ST.B (Stereo B) control can be used to adjust Mix B without affecting Mix A.

The Mix B output from the console is connected via pins 9 (right high), 10 (left high), 38 (right low) and 39 (left low) on the Master module Input/Output connector.

4.3.1.3 Mix B Jumpers

Consoles are shipped from the factory with Master module jumpers JW8 and JW10 installed. When Mix B is separated in this configuration, it can be controlled only from ST.B, the Master module Fader having no effect. If so desired, Master module jumpers JW8 and JW10 can be removed and JW7 and JW9 can be installed. In this configuration, the Mix B level can be controlled from both ST.B and the Master module Fader.

4.3.2 Auxiliary Mixes

Three Auxiliary Mix (Send) buses, Sl (Send 1), S2 and S3 are provided in the console, AUX MIX 1 being a stereo Send, while AUX MIX 2 and AUX MIX 3 are for mono signals. As well as providing cue (foldback) signals, Sends can be used to create sub-mixes for processing in effects units such as time delays, echo boxes or reverberators.

Send 1 also can be used as a secondary mix output from the console. It is assignable separately from Mix A and the audio Group outputs, thus providing a total of four separately assignable mixes, Mix A/B, Group 1-2, Group 3-4, and Send 1. Send 1 is particularly useful in the Secondary Audio Programming mode which is more fully described in paragraph 4.4.3.

Inputs to the Send buses can be derived from Input, Stereo Input or Group module Channels, and can be either pre-Fader or post-Fader signals, this selection being made by means of the PRE switches on the module's Send Control section. (See paragraphs 3.7.3, 3.8.3 and 3.9.3.)

Except where a module is muted, its Channel signal is always present on all of the Send level controls and, to direct this signal to any bus, all that need be done is to adjust the appropriate level control for the desired amplitude. It is important to note that this control must be set fully counter-clockwise when it is desired to suppress the signal to the Send bus.

Since Send 1 is for stereo signals, it is provided with a PAN control, which normally pans the signals directed to Send 1. However, where Send 1 is used to create a separate mix, the MIX switch on the Send Control section must be selected so as to route the post-Fader Channel signal directly to the Send 1 bus pair. Under these conditions, the Send 1 PAN control, level control and PRE switch are bypassed, and the Send signal is panned by means of the Channel PAN control, while its level is controlled by the Fader.

4.3.3 Auxiliary Mix Output Controls

The Send output controls are located on the Master module control panel, and are arranged in sections which are clearly labelled AUX 1, AUX 2 and AUX 3. Only two controls are associated with each Send, these being the MUTE switch and level control, both of whose functions are self-evident. The Send 1 level control differs from those for Send 2 and 3 in that it is a dual, concentric control, the outer section being used to adjust the left signal element while the inner section adjusts the right element.

All of the Send outputs from the console are routed via the Master module Input/Output connector pins listed below:

Send 1 Right High	pin 15	Send 1 Right Low	pin 44
Send 1 Left High	pin 16	Send 1 Left Low	pin 45
Send 2 High	pin 14	Send 2 Low	pin 43
Send 3 High	pin 13	Send 3 Low	pin 42

4.3.4 Direct Line Outputs

All of the Input and Stereo Input modules have Direct Line Out functions which can be used to provide line level feeds from various signals. Direct Line Outputs are particularly useful where it is required to provide a separate output from a single channel. Typically, they can be used as a single-channel feed to a recorder, or to some other outboard device, e.g., in multiple commentary applications.

Where an Input module is not being used in normal console operation, its Direct Line Output can be used as a separate microphone or line amplifier. Similarly, an unused Stereo Input module can serve as a stereo line amplifier or distribution amplifier.

4.3.4.1 Input Module Direct Line Out

In the Input module, the signals available for direct output can be selected from Input A, Input B, the post-Equalizer signal, or the post-Fader Channel signal, the mutually exclusive selection switches being located towards the top of the control panel, just below the PSL switch.

On the standard Input module, the Direct Line Output selection switches are labelled MIC and LINE, while in other configurations, the module can have two MIC switches or two LINE switches. However, in any configuration, the upper switch always selects Input A and the lower selects Input B.

The EQ and CHAN switches respectively select the post-Equalizer and Channel signals. It is important to note that the Direct Line Out EQ signal is ALWAYS equalized, whether or not the EQ switch on the Equalizer section has been selected. This allows an equalized signal to be fed to some outside facility without necessarily equalizing the Channel signal.

The amplitude of the selected Direct Line Output is adjusted by the Output Level Trim control immediately to the left of the EQ switch. If so required, the selected signal can be soloed (previewed) by selecting the SOLO switch immediately to the left of the CHAN switch.

The direct output from the Input module is connected out of the console via pins 9 (high) and 38 (low) on the Input module's Input/Output connector.

4.3.4.2 Stereo Input Module Direct Line Out

In Stereo Input modules, the available Direct Line Out signals are Input 1, Input 2, Input 3 or the post-Fader Channel signal. It should be noted that these outputs are stereo signals. The mutually exclusive selection switches are labelled IP 1 (Input 1), IP 2, IP 3 and CHAN, and are located towards the top of the control panel, immediately below the Phase switch.

On the signal selection switches, the labels indicate which signals will be selected, while the Output Level Trim control and SOLO switch serve exactly the same functions as do their counterparts on the Input module. The outputs from the console are connected via the Stereo Input module's Input/Output connector on pins 5 (right low), 6 (left low), 34 (right high) and 35 (left high).

4.3.5 Audio Group Outputs

In the Audio Grouping mode, signals from several sources are grouped together and directed to the 2-Mix bus pair. This Group audio also is made available on pins 16 (high) and 45 (low) of the Group module's Input/Output connector, thus providing a further console output capability. Refer to paragraph 4.4.1 for further information on Audio Grouping.

The four Group outputs can be used in several ways. Typically, in recording applications, these outputs can be supplied to four separate recorder tracks. Similarly, in a news-gathering situation, they can supply four separate feeds/mixes to other studios or organizations.

4.4 MODES OF OPERATION

This section discusses some of the modes of operation available to the **MXP-2900** console. It should be noted that these examples presuppose a console whose jumpers are unchanged from the factory configuration. Where the factory configuration has been altered, some operating procedures may vary from those given in this text.

4.4.1 Audio Grouping

In the Audio Grouping mode, post-Fader Channel signals from the various Input and/or Stereo Input modules are directed via the Group buses to pairs of Group modules, the circuit arrange ment being such that the left element of the panned signal is fed to the odd-numbered bus, while the right element is fed to the even- numbered bus. Thus, each individual signal from the input modules is directed via two Group modules to its final destination(s).

As well as the signals from the input modules, Return signals from outside the console also can be directed to the Group module pairs.

NOTE: Group module pairs cannot be used simultaneously in both Audio Grouping and VCA Grouping (paragraph 4.4.2) modes. However, it is permissible to use one Group pair for Audio Grouping and the other pair for VCA Grouping.

Within the Group modules, all of the individual signals are combined, and two major paths are provided for the Group audio, one of these being to the 2-Mix bus, and the other being to the Group Out pins on the Group module's Input/Output connector (see paragraph 4.3.5). In addition, the Group audio can be directed to the Sends, to the PFL bus, or to the Solo (Preview) bus, as required.

4.4.1.1 Group Audio from Input Modules

To direct the signal from any Input module to a Group pair, the appropriate Group bus switch must be selected on that module. These switches are located immediately above the writing strip on the Input module, and are labelled 1-2 and 3-4. As its name implies, the 1-2 switch directs the Input module's Channel signal to the Group 1/Group 2 bus pair. Similarly, the 3-4 switch steers the signal to the Group 3/Group 4 pair. In either case, the left element of the panned Channel signal is directed to the odd-numbered bus, while the right element is steered to the even-numbered bus. Where either the 1-2 switch or the 3-4 switch is selected on the Input module, the appropriate indicator (1/2 or 3/4) becomes illuminated.

4.4.1.2 Group Audio from Stereo Input Modules

The Group bus pair arrangement on the Stereo Input module is virtually identical to that on the Input module, and the 1-2 and 3-4 switches perform exactly the same functions as those already described. One minor difference lies in the fact that the signals directed to the Group bus are panned (Channel PAN) in the Input module, but are balanced (Channel BAL) in the Stereo Input.

4.4.1.3 Return Signals

As was stated in paragraph 4.2.3, each Group module incorporates the control circuitry necessary for one Return signal, and these Return signals can be directed to Group buses.

The Group pair switches for the Return are located in the RETURN section at the top of the Group module control panel, and these serve exactly the same functions as their counterparts on the Input and Stereo Input modules. Returns directed to the Group bus pairs are panned by the Return PAN control.

4.4.1.4 Group Output Control

NOTE: Provision is made for a Group Patch Send and Return at pins 7 (Patch Out), 36 (Patch Return) and 22 (Shield) on the Input/Output connector. This patch provides a means of inserting an external processor in the Group Out audio path. Where no external device is connected to pins 7 and 36, they must be wired together to complete the Group Out audio path. Similarly, to complete the Group to 2-Mix path, pins 8 (2-Mix Patch Out), and 9 (2-Mix Patch Return) must be connected together, either through some external device or through a link.

The Group to 2-Mix signal is derived from post-Fader audio, and its level always can be adjusted by means of the Fader. Also, given certain jumper configurations, it can be controlled by the rotary LEVEL control as well as the Fader.

This signal is positioned in the mix by means of the Group PAN control.

Also depending upon jumper configuration, the Group Out signal level can be adjusted by the Fader only, by the rotary LEVEL control only, or by both the Fader and the LEVEL control.

The Group module jumpers involved in setting the control conditions mentioned above are JW21, JW22, JW23 and JW34, and these are described in paragraphs 2.6.3.4 and 2.5.3.5. Table 4-1 summarizes the control conditions that can result from the the four possible configurations offered by these jumpers.

4.4.2 VCA Grouping

In the VCA Grouping mode of operation, the Channel signals in any desired number of Input or Stereo Input modules can be controlled by a single Group module Fader.

Each input module has its own VCA GP (VCA Group) switch, and this is used to select any one of the four optional Group modules as a controller for the input module's VCA. Thus, to assign input modules 4, 5, and 14 to Group 3, the VCA GP switch on each of those input modules is set to 3. Once all of the appropriate input modules are assigned to a Group, the VCA Grouping mode is activated by selecting the designated Group module's VCA switch (located immediately above the writing strip). Once the mode is activated, any movement of the Group module Fader adjusts the post-VCA audio levels in all of the input modules assigned to the Group.

Any number of input modules can be assigned to a single Group module for this remote control application. It should be noted that all of the assigned input modules are still subject to control from their own Faders, this allowing the user to preset the Channel signals to the desired comparative levels and then use the Group Fader to control all of those signals simultaneously. Outputs from the Input and Stereo Input modules can be directed to the desired destinations in the usual manner.

4.4.3 Secondary Audio Programming And Mix Minus Recording

Secondary Audio Programming is used in applications where similar program material is to be broadcast from two separate transmitters with different dialogs or commentaries. A typical example is that in which musical programs are broadcast with announcements, commercials, etc. in two different languages. The following discussion assumes such an example in which the two different languages are Spanish and English.

The setup required for Secondary Audio Programming is illustrated in Figure 4-1. From all of the Input modules devoted to the musical program, the Channel Outputs are directed to the Send 1 (AUX MIX 1) bus pair as well as to the 2-Mix left and right buses, this being accomplished by

CONFIGURATION				GROUP OUT CONTROLLED BY		2-MIX CONTROLLED BY	
JW21	JW22	JW23	JW34	FADER	LEVEL	FADER	LEVEL
IN	OUT	IN	OUT	YES	NO	YES	NO
OUT	IN	IN	OUT	YES	YES	YES	YES
IN	OUT	OUT	IN	NO	YES	YES	NO
OUT	IN	OUT	IN	NO	YES	YES	YES

Table 4-1. Control Jumpers

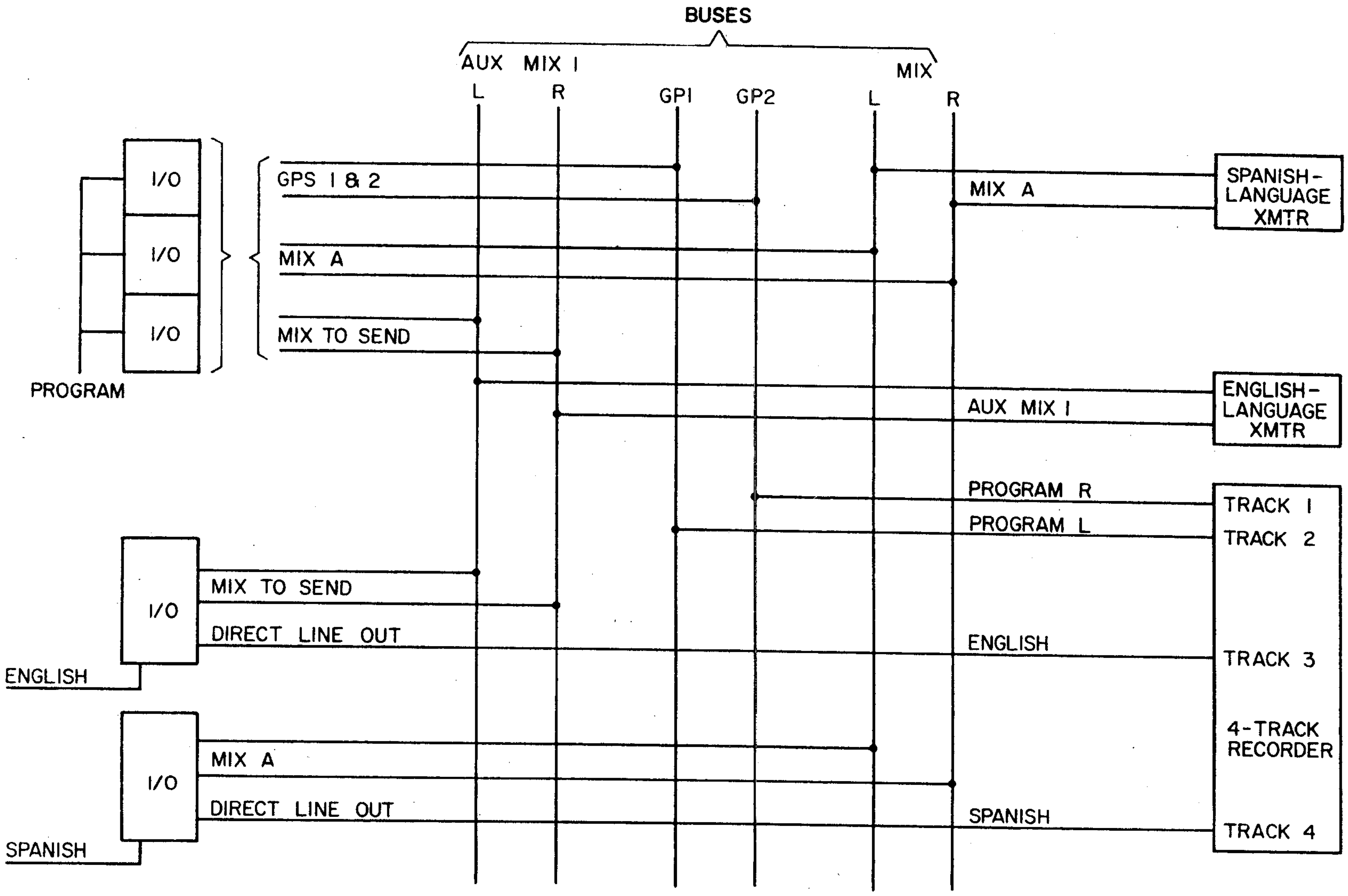

BUSES
AUX MIX I
L
R
GPI
GP2
MIX
L
R
I/O
I/O
I/O
PROGRAM
GPS I & 2
MIX A
MIX TO SEND
SPANISH-LANGUAGE XMTR
MIX A
ENGLISH-LANGUAGE XMTR
AUX MIX I
PROGRAM R
PROGRAM L
TRACK I
TRACK 2
I/O
MIX TO SEND
DIRECT LINE OUT
ENGLISH
ENGLISH
TRACK 3
4-TRACK RECORDER
I/O
MIX A
DIRECT LINE OUT
SPANISH
SPANISH
TRACK 4

Figure 4-1. Secondary Audio Programming

selecting the MIX switch on the Send Control section of each Input module, together with the MIX switch on its Channel Output section.

In addition to the Input modules used for the common program material, one Input module is dedicated to each announcer. By selecting MIX on the Channel Output section of the Spanish announcer's Input module, the Spanish commentary is directed to the 2-Mix bus, while selecting MIX on the Send Control section on the English announcer's Input module causes the English commentary to be directed to the Send 1 bus. Thus, the mix on the Send bus includes the common program material plus announcements in English, and can be routed to the English language transmitter. Similarly, the mix on the 2-Mix bus include the program material plus announcements in Spanish, this being directed to the Spanish language transmitter.

As also is shown in Figure 4-1, where it is desired to record the broadcast material, the Channel signals from the Input modules carrying the common pro gram material also can be directed to the Group 1/2 bus pair, this being accomplished by selecting the 1-2 switch on all of the appropriate Input modules. The Group Out signal then can be coupled to two tracks on a four-track recorder. At the same time, the Channel signals from the two announcer's Input module can be fed via the Direct Line Out puts to the other two tracks on the recorder. By this means, the common program material, together with announcements in both languages, is recorded on the four tape tracks.

4.5 MISCELLANEOUS FUNCTIONS

In addition to the major modes of operation described in paragraph 4.4, a number of subsidiary functions are important enough to be worthy of separate consideration. These functions are discussed in the following paragraphs.

4.5.1 Pre-Fader Listening

The PFL (Pre-Fader Listening) function directs selected signals from Input modules, Stereo Input modules, or Group modules to the PFL speaker in the Meter Housing, thereby providing a means of monitoring those signals. The PFL Meter, also on the Meter Housing, indicates the level of the selected PFL signal.

In applications where it is necessary to switch between two audio sources, e.g., when switching from one announcer to another, etc., PFL provides a method of previewing the second source, setting its level, etc., before going "live".

All of the important signals in the console are available for PFL. A complete list of these is given below, together with their selection methods:

Input module Channel signal - Selected by the Input module PFL switch, this being located at the bottom of the Input module panel.

Stereo Input module Channel signal - Selected by the module PFL switch mounted at the bottom of the Stereo Input module panel.

Group Audio signal - Selected by the Group module PFL switch located at the bottom of the Group module control panel.

Return signal - Selected by the PFL switch on the RETURN section of the appropriate Group module control panel.

The volume level for the signals fed to the PFL speaker is adjusted by the CONSOLE SPEAKER control on the Communications module control panel.

4.5.2 Pre-Select Listening

Pre-Select Listening (PSL) performs a function similar to PFL, but is applicable only to those Input modules being fed with dual inputs. In these modules, one of the two inputs is selected as the Channel signal while the other is available for use as second source audio. The PSL function allows the second source (i.e., the input NOT selected as the Channel signal) to be previewed and/or adjusted before switching over from the first source to the second. The PSL activating switch is located toward the top of the Input module control panel, immediately below the Phase switch.

4.5.3 Solo (Preview) Function

The Solo (Preview) function provides a means of monitoring individual signals without interfering with ongoing broadcast or recording operations. Previewed signals are directed to the Control Room Monitor speakers. A typical use for this mode would be to select some Channel, Group, or Return signal which requires level adjustment, equalization, or other modification during an ongoing "live" operation.

All of the signals that can be selected for solo (preview) monitoring are listed below, together with their means of selection:

Input module Channel signal - Selected by the Input module Channel SOLO switch located just below and to the left of the Channel Mute switch.

Input module Direct Line Out signal - Selected by the Direct Line Out SOLO switch located immediately below the Output Level Trim control at the top of the Input module panel.

Stereo Input module Channel signal - Selected by the Channel SOLO switch, which is located just below and to the left of the Channel Mute switch.

Stereo Input module Direct Line Out signal -

Selected by the Direct Line Out SOLO switch located immediately below the Output Level Trim control at the top of the Input module panel.

Return Signal - Selected by the Return SOLO switch on the RETURN section of the appropriate Group module panel.

Group Audio - Selected by the Group SOLO switch located just below and to the left of the Group Mute switch.

4.5.4 Equalization

Equalizer controls are provided on the Input and Stereo Input modules so that individual Channel signals can be equalized. Equalizers also are provided on the Group modules, and these can be switched into either the Group audio path or the Return path. The Equalizer section arrangements differ slightly between the three modules, and are discussed separately in paragraphs 4.5.4.1 through 4.5.4.3.

4.5.4.1 Input Module Equalizer

The Input module Equalizer section is located immediately below the Direct Line Out section of the module's control panel, and it includes a High Pass Filter switch, together with boost/cut controls for high (HF), middle (MID) and low (LF) frequencies. The high and low frequencies are fixed at 10 kHz and 80 Hz respectively, but provision is made for sweeping the mid-frequency between the limits 150 to 5000 Hz.

The High Pass Filter is independent of the Equalizer, and is activated by selecting the ⁄‾‾‾ switch. The filter cutoff frequency is 80 Hz at -3 dB, with a rolloff characteristic of 12 dB per octave.

The Equalizer is activated by selecting the EQ switch, the nominal boost/cut range for each frequency being +15 dB. The Mid-frequency Sweep Control is located in the lower right-hand corner of the Equalizer control section.

4.5.4.2 Stereo Input Module Equalizer

The Stereo Input module Equalizer differs from that on the Input module in that the High Pass Filter switch is replaced by a second EQ switch, this change being necessitated by the fact that the stereo Equalizer must control both left and right elements of the Channel signal.
The HF, MID, LF and Mid-Frequency Sweep controls perform exactly the same functions as do their counterparts on the Input module, and can be applied to the left signal element, the right signal element, or both elements, this depending upon the switch(es) selected.

When the upper EQ switch is selected, the right element Equalizer becomes activated. Similarly, when the lower EQ switch is selected, the left element Equalizer is activated. Where it is desired to equalize both elements simultaneously, both EQ switches must be selected. Conversely, where equalization of the stereo signal is not required, neither EQ switch should be selected.

4.5.4.3 Group Module Equalizer

The Group module Equalizer controls are similar in most respects to those on the Input module, differing only in that the High Pass Filter switch is replaced by the RET/GP switch.

RET/GP is used to place the Equalizer into either the Return path (switch NOT selected) or into the Group audio path (switch selected). Except for this switch, the Group Equalizer controls provide exactly the same functions as those described for the Input module.

4.5.5 Muting Functions

Each Input module and Stereo Input module is provided with a Channel Mute switch/indicator. In addition, provision is made for muting the Auxiliary Mixes (Sends), Group-to-Mix audio, and Group outputs.

4.5.5.1 Input Module Muting

In the Input module, the Channel Mute switch/ indicator is used to toggle the module into and out of the muted mode. The indicator is arranged so as to be extinguished when the Channel is muted.

In the muted state, the output from the module's VCA (Voltage Controlled Amplifier) is fully suppressed, thereby cutting off all of the post-Fader signals to Sends, to Groups, to the 2-Mix buses and to the Solo (Preview) buses. It should be noted that pre-Fader audio remains available for PFL or PSL operations.

4.5.5.2 Mute A and Mute B

The Input module can be programmed so that its signal becomes automatically muted at the Control Room monitor and/or at the Studio monitor when the Fader is moved away from its full down position. These muting signals are called Mute A and Mute B, Mute A becoming effective when Input A is selected, and Mute B when Input B is selected.

Jumpers JW18 through JW21 are used, in conjunction with links on the module's Input/Output connector, to program the desired muting functions. Specific programming details are given in Section 2, paragraph 2.5.1.5.

Two sets of relay contacts are associated with Mutes A Mute B, and are brought out to the module's Input/Output connector. These contacts can be used to activate external devices or indicators. At the Input/Output connector, the Relay A contacts are on pins 6 (normally closed), 21 (common) and 35 (normally open), while Relay B contacts are on pins 5 (normally closed), 20 (common) and 34 (normally open).

4.5.5.3 Stereo Input Module Muting

The Stereo Input module's Channel Mute switch operation is identical to that on the Input module, suppressing the post-Fader signals from both VCAs and cutting off the Channel output from all of its destinations.

It should be noted that the Studio monitor headphone outputs at the Stereo module's Input/Output connector pins 2 (Presenter HP Left), 31 (Presenter HP Right), 17 (Presenter HP Common), 3 (Guest HP Left), 32 (Guest HP Right) and 18 (Guest HP Common) remain unaffected when MON is selected.

4.5.5.4 Group Module Muting

Group module muting control also is similar to that described for the Input module, but has the added provision that the Mute switch can be by- passed if so desired. This can be accomplished by simply removing JW28, as described in Section 2, paragraph 2.5.3.8.

4.5.5.5 Auxiliary Mix Muting

Each of the AUX 1, AUX 2 and AUX 3 sections on the Master module panel incorporates a MUTE switch. These are standard pushbutton switches which mute the appropriate Send when selected.

4.6 MASTER MODULE FUNCTIONS

The Master module provides all of the Master controls for the Mix A, Mix B and Auxiliary Mix outputs, together with Rehearse/On Air switching.

The controls for the Auxiliary Mix sections already have been described in paragraph 4.3.2, and the remaining controls are described in paragraphs 4.6.1 and 4.6.2.

4.6.1 Mix A and Mix B

The Master Fader always controls the Mix A output level, but Fader control for Mix B depends upon the module's jumper configuration. In consoles using the standard jumper configuration from the factory, the Mix B level is controlled only by the rotary ST.B control. However, if so required, the jumper configuration can be changed so that the separated Mix B can be controlled by both the ST.B control and the Master Fader. Jumper programming details are given in paragraph 4.3.1.3.

4.6.2 Rehearse/On Air Switching

Rehearse/On Air switching provides a convenient means of muting the Mix A output while preparing for a broadcast. In Rehearse mode, the console is muted while microphones and other program material inputs are being set up. Once all of the necessary preparations are completed, the console can be unmuted by simply selecting On Air mode or clearing Rehearsal mode.

It is important to note that On Air mode can be selected at any time, regardless of current Rehearse/On Air status, but that Rehearse cannot be selected while the console is in the On Air mode. Where it is desired to go to Rehearse from On Air mode, On Air must first be cleared.

The REH and ON AIR switches each control two sets of relay contacts, and these can be used to enable external devices such as studio warning indicators, etc. These relay contacts are brought out to the Master module's Input/Output connector as detailed below:

Relay Function	Normally Open	Normally Closed	Common Contact
ON AIR RLY 1	Pin 32	Pin 3	Pin 18
ON AIR RLY 2	Pin 31	Pin 2	Pin 17
REH RLY 1	Pin 5	Pin 34	Pin 20
REH RLY 2	Pin 4	Pin 33	Pin 19

In addition to the REH and ON AIR switches, a CLR (Clear) switch is provided, and this can be used to clear either mode. However, it must be noted that, to preclude any possibility of inadvertently switching off the program material during a broadcast, a specific switching sequence must be followed when it is desired to clear the On Air mode. To accomplish this, ON AIR and CLR must be pressed simultaneously, then ON AIR must be released before CLR. This results in the system reverting to the "no mode selected" condition. To clear Rehearse mode, only CLR need be selected.

4.7 MONITOR MODULE FUNCTIONS

As its name implies, the Monitor module controls all of the consoles monitoring functions. Its control panel (Figure 1-3) is divided into four major sections, three of these sections providing the monitor controls required for specific areas, while the fourth includes controls associated with Editor interfacing.

4.7.1 Meter Switching

The METER section at the top of the panel incorporates four mutually exclusive switches which are used to direct specific signals to the main LEFT and RIGHT meter on the Meter Housing. By appropriate switch selection, the meters can be used to monitor Mix A, Mix B, or the signal supplied to the Control Room monitors (see paragraph 4.7.2). In addition, the Ø (Phase) switch can be selected when it is desired to measure the relative phases of the Mix A left and right elements, this being accomplished by showing the sum of these elements on the LEFT meter and their difference (amplified by 10 dB) on the RIGHT meter.

4.7.2 Control Room Section

The CONTROL ROOM section of the panel incorporates the switches needed to direct the required signals to the Control Room speakers, the selected signal also being supplied to the HEADPHONES jack at the bottom of the Monitor module panel. This section also includes the SOLO listening level control, separate level controls for the signals to the Control Room monitor and the HEADPHONES jack, and three muting switches.

As well as console signals, provision is made for directing user designated external signals to the Control Room monitor by means of the four EXT switches (see Figure 1-3). The external signals are connected via the Monitor module's Input/Output connector, and are labelled EXT 1, EXT 2, EXT 3 and EXT 4. Pin connections for the external signals are listed below:

SIGNAL	HIGH	LOW
EXT1R	Pin 15	Pin 44
EXT1L	Pin 16	Pin 45
EXT2R	Pin 13	Pin 42
EXT2L	Pin 14	Pin 43
EXT3R	Pin 11	Pin 40
EXT3L	Pin 12	Pin 41
EXT4R	Pin 9	Pin 38
EXT4L	Pin 10	Pin 39

The console signals available for Control Room monitoring are Mix A, Mix B, S1 (Send 1), S2 and S3, the appropriate switches for these signals being labelled accordingly. The MONO switch immediately above the MIX A switch directs the Mix A (console output) mono sum to the monitor.

The MONO switch located immediately below the S3 switch is used to create the mono sum of any signal that has been directed to the Control Room. It should be noted that this switch sums ONLY the Control Room signal, and has no effect upon the signals to the Studio monitor, to the 2-Mix bus, or to any other destination.

The three muting switches in the CONTROL ROOM section are labelled MUTE L, MUTE R, and MON (Monitor Mute). As their names imply, MUTE L and MUTE R can be selected to mute the individual left or right elements of the signal directed to the Control Room speakers.

The MON switch mutes unmutes (toggle operation) the speakers in both the Control Room and the Studio. If so desired, the Monitor module jumper configuration can be rearranged so that the Studio monitor does not become muted when MON is selected (paragraph 2.5.5.7).

Two controls are available for setting monitor signal levels, the MONITOR control setting the level to the Control Room and Studio speakers, while the 🎧 control sets the level to the HEADPHONES jack at the bottom of the panel.

4.7.3 Studio Section

The STUDIO section of the Monitor module panel provides the necessary switches for directing specific signals to the Studio monitor, the two EXT switches selecting the EXT 1 and EXT 2 signals while the S1, S2 and S3 switches select the auxiliary mixes.

In addition to the signals mentioned above,

the SEL (Select) switch can be used to direct the Control Room's selected signal to the Studio monitor if so desired, thus making all of the Control Room signals available at the Studio monitor.

As was stated in paragraph 4.7.2, the listening level at the Studio speakers is set by the MONITOR control in the CONTROL ROOM section of the panel. The 🎧 control in the STUDIO section of the panel is used to set the level at the external Interviewer and Guest headphones. These external headphones are connected via the Monitor module's Input/Output connector on pins 2, 3, 31 and 32 (see Table 2-3, Sheet 1).

4.7.4 Editor Controls

The remaining Monitor module controls are the BYPASS and AUTOMUTE switches, both of these being associated only with Editor Interface operations. BYPASS is used with both the **MXBK-EI21** and **MXBK-EI22** Editor

Interfaces, and is selected when it is desired to completely bypass Editor control. AUTOMUTE is used only with the **MXBK-EI21**, and is selected when it is required to mute those Editor Interface channels that are not currently under Editor control.

4.8 COMMUNICATIONS MODULE FUNCTIONS

The Communications module controls all of the console's talkback functions. It incorporates the Talkback microphone, a test oscillator with frequency and level controls, and distribution switching for the oscillator and Talkback signals.

4.8.1 Talkback Controls

The Talkback microphone and CONSOLE SPEAKER control are located at the top of the control panel. So long as neither PFL nor PSL is selected any where in the console, the CONSOLE SPEAKER control is used to set the volume of Talkback from any external communication source, this being brought into the console via the Communications module's Input/Output connector. Pin connections for the external Talkback signal are listed in the following table:

TALKBACK SIGNAL	HIGH	LOW
TB IN 1	Pin 11	Pin 40
TB IN 2	Pin 10	Pin 39
TB IN 3	Pin 9	Pin 38
TB IN 4	Pin 8	Pin 37

The presence of an external Talkback signal is indicated by the illumination of the TB CALLING annunciator on the Meter Housing

.

When PFL or PSL is selected (see paragraphs 4.5.1 and 4.5.2), the PFL or PSL signal is heard in the Meter Housing speaker, overriding any external Talkback.

Where it is desired to provide local talkback from the Studio to the console, optional Relay Card MXBK-RL21 must be installed. This option is more fully described in paragraph 4.11.

4.8.2 Oscillator and Noise Generators

The OSCILLATOR section incorporates all of the necessary controls for the Oscillator and noise generators. The ON switch is used to activate this section, and the PINK and WHT switches are used to select either pink or white noise test signals

The Oscillator becomes activated when any one of the x1, x10 or x100 multiplier switches is selected, and the FREQ control sets the Oscillator's base frequency between the limits 15 to 150 Hz, thus providing an overall Oscillator frequency range of 15Hz to 15 kHz. The FREQ control is detented at the 1000 Hz (x10 multiplier) point.

The remaining switch in the OSCILLATOR section is the IDNT (Identification) switch. When selected, this switch causes a two-tone signal to be generated, this signal alternating between 1000 and 2000 Hz at a 0.5 Hz rate.

4.8.3 Oscillator Assignment

The ASSIGNMENT section switches are used to direct the selected Oscillator signals to such destinations as may be required. Also included in this section is the OSC LEVEL control which adjusts the Oscillator signal level.

Each of the Assignment switches is used to direct the Oscillator signal to a specific bus or set of buses, and is labelled accordingly, as follows:

GPS Directs the signal to all four Group buses;
MIX Directs the signal to the Mix L and R bus pair;
S1 Directs the signal to the Send 1 bus pair;
S2 Directs the signal to the Send 2 bus;
S3 Directs the signal to the Send 3 bus.

It should be noted that the Assignment switches can be selected individually or simultaneously in any desired combination. However, where MIX and GPS are selected simultaneously, MIX overrides GPS so as to avoid a double feed.

4.8.4 Talkback Assignment

The TALKBACK SELECT switches direct Talkback microphone audio to various buses, to the Studio monitors, and/or to any one of five user designated destinations. The SLATE switch assigns the signal to all four Group buses, and the Mix L and R bus pair, while AUX 1, AUX 2 and AUX 3 direct it to Send buses 1, 2 and 3, respectively. The STUDIO switch directs the microphone audio to the Studio monitor.

The user designated external outputs are directed to their destinations via the five EXT switches. The external connections are made via the Communications module's Input/Output connector as follows:

SIGNAL	HIGH	LOW
EXT 1	Pin 16	Pin 45
EXT 2	Pin 15	Pin 44
EXT 3	Pin 14	Pin 43
EXT 4	Pin 13	Pin 42
EXT 5	Pin 12	Pin 41

4.9 METER HOUSING

The Meter Housing (Figure 3-1) includes all the console meters, annunciators for various functions, a digital clock, and the PFL Talkback speaker.

4.9.1 Group Meters

The Group meters illustrated in Figure 3-1 are moving coil types with VU (Volume Unit) scales, as used in the MXP-2916, MXP-2926 and MXP-2936 consoles. In the MXP-2916P, MXP-2926P and MXP-2936P versions, these meters are replaced by PPM (Peak Program) types. The Group meters are used only for Group signal monitoring, each Group associated with the appropriate meter, i.e. GROUP 1, GROUP 2, GROUP 3 and GROUP 4.

4.9.2 LEFT and RIGHT Meters

The LEFT and RIGHT meters shown in Figure 3-1 also have VU scales, and the same comments apply as for the Group meters.

The signal presented to the LEFT and RIGHT meters can be Mix A, Mix B, the selected Control Room signal, or the Mix A phase signals, as explained in paragraph 4.7.1.

4.9.3 Auxiliary Mix and PFL Monitors

The Auxiliary Mix (Send) monitors are LED bar- graph displays, and these are mounted vertically. Each of these displays is clearly labelled in accordance with its function, i.e. AUX lR, AUX lL, AUX 2 and AUX 3. The PFL indicator is similar in type to the AUX MIX displays, and is used for monitoring the PFL signal level.

4.9.4 Annunciators

Six LED annunciators are provided to show the status of various console functions. The purpose of each annunciator is listed in the following table:

TB CALLING	Illuminates when an external Talkback signal is present.
REH	Illuminates when the console is in Rehearse mode.
ON AIR	Illuminates when the console is in On Air mode.
PFL/SOLO	Illuminates when any PFL or SOLO switch is selected.
CONTROL L.S. MUTE	Illuminates when the Control Room speakers are muted.
STUDIO L.S. MUTE	Illuminates when the Studio speakers are muted.

4.10 DYNAMICS PROCESSING

Dynamic Processing of an audio signal can be defined as the manipulation of the overall range between the minimum and maximum levels of that signal by means of compression and limiting. The optional Dynamics module provides dynamics processing channels which can apply compression and/or limiting to up to four selected console signals or Groups of signals.

4.10.1 Dynamics Channel Selection

Inputs to the Dynamics module can be taken from Input or Stereo Input modules as required, each of these modules having a DYNAMICS switch to provide for Dynamics channel selection.

The Dynamics switches are thumbwheel types, and have display windows which display the number (1 through 4) of the selected compressor/limiter channel. Where dynamics processing is not selected, the letter L is displayed.

4.10.2 Dynamics Module

The Dynamics module is divided into four identical Processor sections, each of these being identified with a channel number and having the following controls:

COMPRESSOR Section	LIMITER Section
ON switch and indicator	ON switch and indicator
ATTACK control	THRESH control
RELEASE control	PEAK indicator
RATIO control	
THRESH control	
GAIN REDUCTION meter	

NOTE: Where both Compressor and Limiter are activated together, the Compressor controls must be set first.

4.10.3 Compressor

The compression function reduces the gain of a signal whose amplitude exceeds a set reference level (Threshold). Compression is activated by the COMPRESSOR ON switch, and is controlled by the THRESH, RATIO, RELEASE and ATTACK controls.

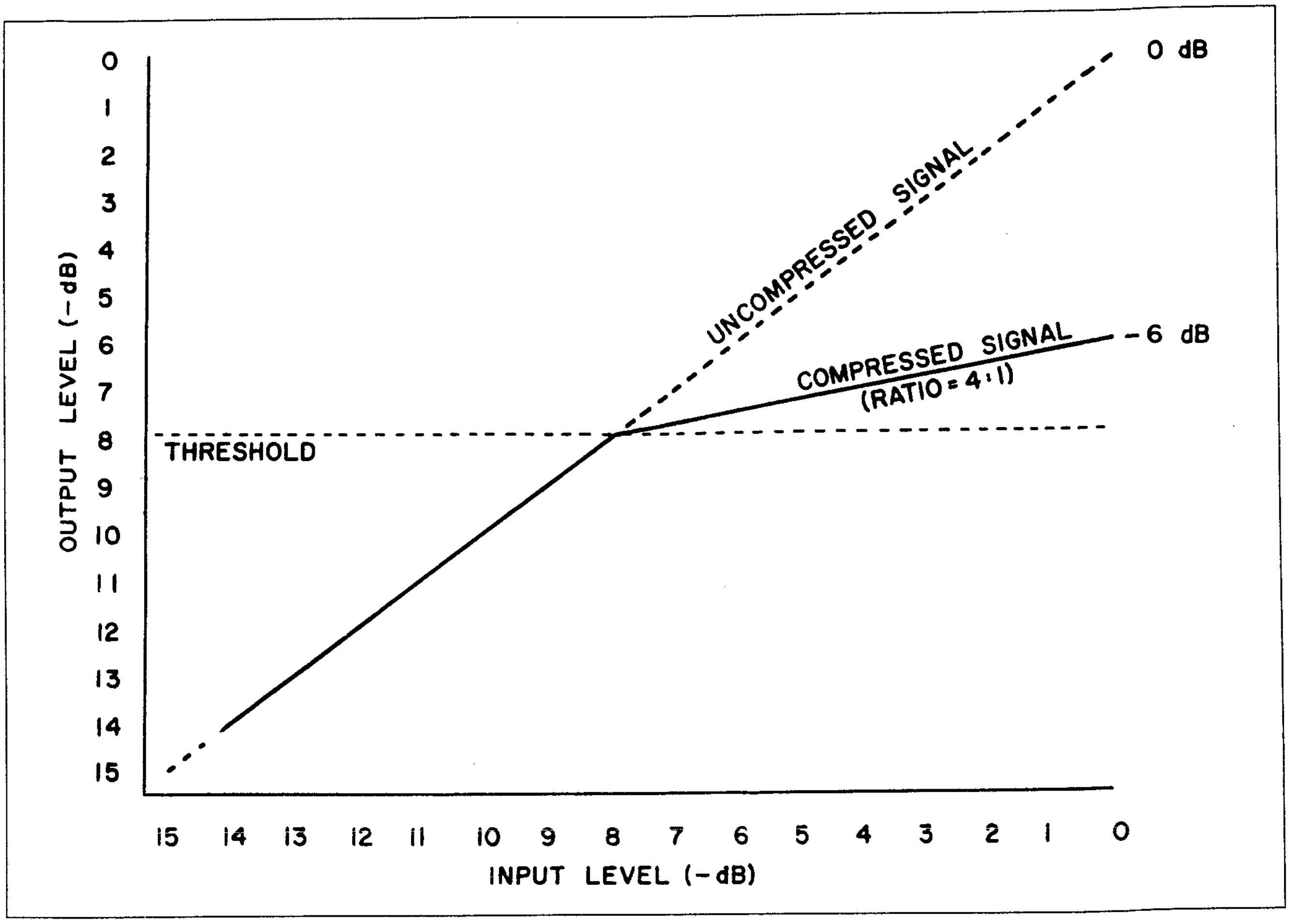


Figure 4.2 Compression Transfer Curve

The THRESH control sets the desired compression threshold between the limits -20 dB to +10 dB, and the RATIO control sets the desired degree of compression. The compression ratio describes the gain reduction between the above-threshold compressor input and the compressor output. For instance, if an input level increase of 4 dB causes the output level to increase by 1 dB, the compression ratio is said to be 4:1.

Figure 4-2 illustrates a comparison between the compressed and uncompressed signals that would result from a THRESH setting of -8 dB and a RATIO setting of 4. As can be seen, the peak of the compressed signal falls below that of the unprocessed input signal.

In most other systems, it becomes necessary to adjust the output level so as to restore the original peak value whenever compression is introduced. In the **MXP-2900** console, the output is restored automatically to close to its original peak level, see Figure 4-3, and no readjustment is necessary.

The ATTACK control adjusts the time taken for the Processor to modify its gain from the starting level to the compressed gain level. This control is necessary because, if the gain were to change instantaneously as the input level crossed the threshold, the non-linear gain characteristics would result in severe distortion. For the same reason, the RELEASE control is necessary to preclude distortion as the input signal falls below the threshold. These controls should be adjusted so as to obtain the desired degree of compression without introducing that form of distortion variously known as “pumping”, “breathing” or “shimmering”.

When the Compressor is activated, the GAIN REDUCTION meter gives indications (in dB) of the instantaneous degree of gain reduction that is currently occurring within the Compressor.

4.10.4 Limiter

In the LIMITER section, the ON switch is used to activate the Limiter, and the associated indicator becomes illuminated when this switch is selected.

Limiting is used to confine the Processor output to some desired preset level, this level being set by the LIMITER THRESH control.

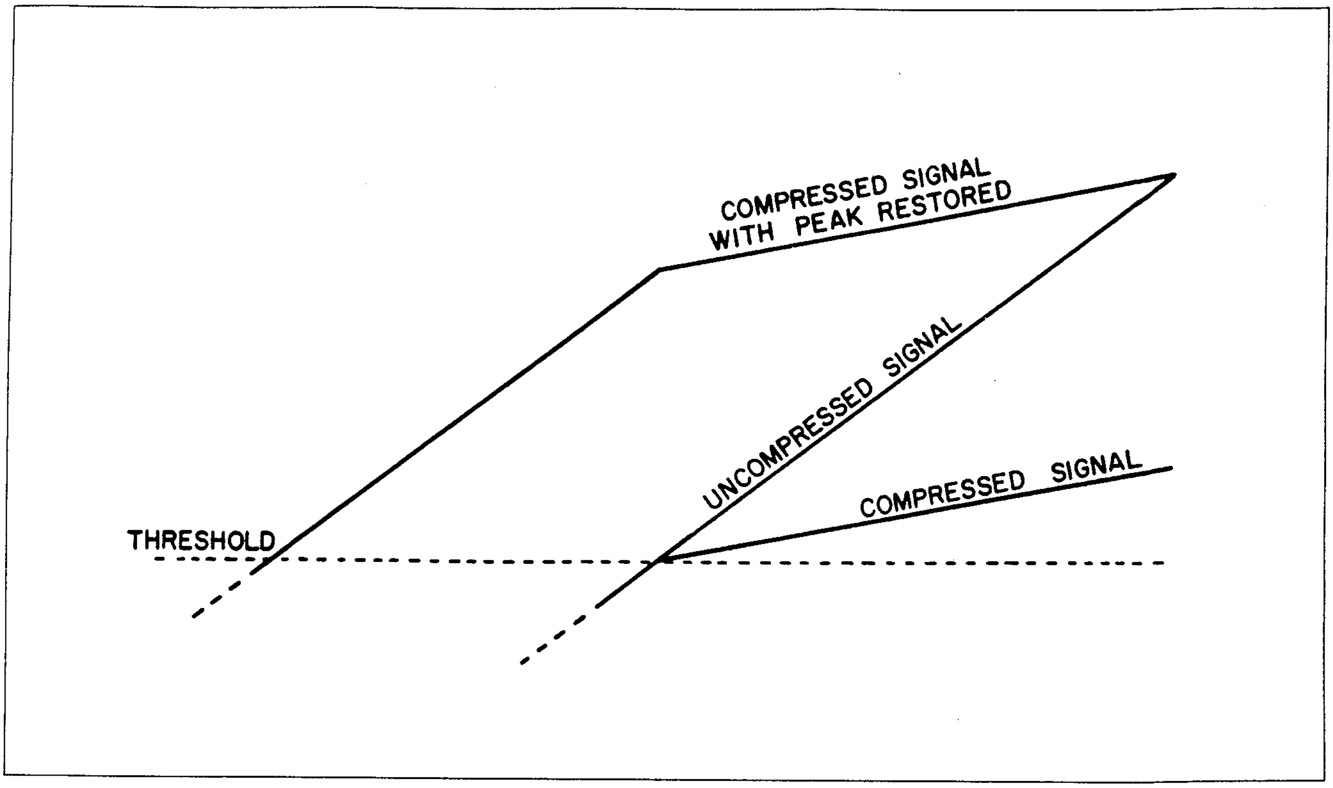


Figure 4.3 Peak Level Restoration

The PEAK indicator becomes illuminated when the Processor audio level exceeds the limiting threshold. In normal operation, this indicator should flash on intermittently only as peaks occur in the program material. Where the PEAK indicator is illuminated constantly, or flashes on too frequently, it is an indication that excessive limiting is occurring, and this should be corrected by adjusting the Input Level Trim control on the appropriate input module.

4.11 RELAY CARD MXBK-RL21

This optional card may be installed in any Input module in the console, and can provide either one of two functions; Reverse Talkback or Automatic PFL. It is most important to note that these functions are mutually exclusive, and only one or the other can be provided for any given Input module.

The Automatic PFL function causes the Input module Channel signal to be directed automatically to the console's PFL speaker when the module's Fader is set to the full down position. This option can be installed single module or in multiple modules in any desired combination.
The Reverse Talkback function provides a means of calling back from the Studio to the Control Room, and any number of Input modules can be provided with this option, thereby allowing Reverse Talkback from several different sources within the Studio.

4.11.1 Automatic PFL

Where the Relay Card provides Automatic PFL, JW15 must be installed in the Input module. In this application, Input A must be selected on the module in which the Relay Card is installed. Furthermore, it is strongly recommended that Automatic PFL be used only in those modules having Line Input cards for Input A. Operation is fully automatic, the Input module's Channel signal being directed to the PFL speaker as soon as the Fader is set to the full down position.

4.11.2 Reverse Talkback

If Reverse Talkback is required, an external, momentary contact Reverse Talkback switch must be connected between pins 2 and 17 on the module's Input/Output connector, and JW15 must be removed from the module. In cases where more than one module is provided with Reverse Talkback, these operations must be performed on each module.

In this application also, Input A must be selected on the Input module. In addition, it should be noted that Reverse Talkback can be used only in those modules having Microphone Input cards for Input A.

Reverse Talkback operation is extremely simple, communication from the Studio to the Control Room being accomplished by simply pressing the Reverse Talkback switch and speaking into the appropriate microphone.

SECTION 5

TEST AND ADJUSTMENT

5.1 INTRODUCTION

This section provides procedures that may be used to verify proper operation of the console. These procedures should be performed in the given order since the results of an adjustment being made may rely on the successful response to a previous test or adjustment. An unsatisfactory response to a test or adjustment shall result in the replacement of the device under test.

5.2 EQUIPMENT REQUIRED

Tests and adjustments require the following equipment:

Digital Voltmeter	(dvm)	Fluke 77 or eq.
AC Voltmeter	(acvm)	HP400FL or eq.
Function Generator	(generator)	Krohn-Hite 5800 or eq.
Distortion Analyzer	(analyzer)	Textronix TM5006 or eq.
Frequency Counter	(counter)	HP5381 or eq.
Oscilloscope Probe	(probe)	Textronic TEK P6121 or eq.
Extender Card	(extender)	Sony T-9481-879-1
Module Extractor (2)	(extractor)	Sony T-9481-178-1

5.3 INITIAL CONDITIONS

Set module controls, as specified, prior to performing tests or adjustments.

5.3.1 Communications Module

CONSOLE SPEAKER level control	centered
OSCILLATOR Section	
ON	not selected
WHT, PINK, x1	not selected
x10	selected
x100, IDNT	not selected
FREQ	100
ASSIGNMENT Section	
All push switches (5)	not selected
OSC LVL	0 DB
TALKBACK SELECT Section	
All switch/indicators (10)	not selected/not lit

5.3.2 Master Module

All rotary controls (5)	0
MUTE (3)	not selected
ST.B	centered
SEP	not selected
REH, ON AIR	not selected
DYNAMIC	**L**
Fader	0

5.3.3 Monitor TV Module

METER Section	
MIX A	selected
MIX B, SEL, Ø	not selected
CONTROL ROOM Section	
SOLO	0
EXT (4)	not selected
MONO	not selected
MIX A	selected
MIX B, S1, S2, S3	not selected
MONO, MUTE L, MUTE R	not selected
🎧 **, MONITOR**	0
MON	unmuted
STUDIO Section	
SEL	selected
EXT (2), **S1, S2, S3**	not selected
🎧	0
BY PASS, AUTO MUTE	not selected/not lit

5.3.4 Input Modules (Mono)

Input/Direct Line Out Section	
LINE (input)	selected
MIC (input)	not selected
Input Level Controls (2)	10
PHAN, PAD, Ø, PSL	not selected
Output Level Control	+12
LINE (output), **MIC** (output)	not selected
EQ, CHAN, SOLO	not selected
Equalizer Section	
All rotary controls (4)	centered
/‾‾ **, EQ**	not selected
Sends Section	
PRE-3/Level Control	not selected/+12
PRE-2/Level Control	not selected/+12
PRE-1/Level Control	not selected/+12
PAN	centered
MIX	not selected
Assignment Section	
PAN	centered
MIX, 1-2, 1-3	not selected
Other Controls	
Channel Mute Switch/Indicator	selected/lit
SOLO	not selected
LOCAL	selected
VCA GP	**L**
DYNAMIC	**L**
PFL	not selected
VO	fully extended/fully clockwise
Fader	0

5.3.5 Stereo Input Modules

Input/Direct Line Out Section	
IP1 (input)	selected
IP2, IP3, (input)	not selected
Input Level Control	10
MONO R, MONO L, Ø	not selected
IP1, IP2, IP3 (output)	not selected
CHAN	selected
SOLO	not selected
Output Level Control	+12
Equalizer Section	
All rotary controls (4)	centered
EQ, EQ	not selected
Sends Section	
PRE-3/Level Control	not selected/+12
PRE-2/Level Control	not selected/+12
PRE-1/Level Control	not selected/+12
BAL	centered
MIX	not selected
Assignment Section	
BAL	centered
MIX, 1-2, 1-3	not selected
Other Controls	
Channel Mute Switch/Indicator	selected/lit
SOLO	not selected
LOCAL	selected
VCA GP	L
DYNAMIC	L
PFL	not selected
VO	fully extended/fully clockwise
Fader	0

5.3.6 Group Module

RETURN Section	
PAN	centered
RETURN level control	+12
1-2, 3-4, MIX	not selected
SOLO, PFL	not selected
Equalizer Section	
All rotary controls (4)	centered
RET/GP, EQ	not selected
Sends Section	
PRE-3/Level Control	not selected/+12
PRE-2/Level Control	not selected/+12
MIX-1/Level Control	not selected/+12
PAN	centered
MIX	not selected
Other Controls	
PAN	centered
LEVEL	0
Group Mute Switch/Indicator	not selected/not lit
VCA, SOLO, PFL	not selected
DYNAMIC	L
Fader	0

5.3.7 Dynamics Module

All rotary controls	centered
All **ON** push switches	not selected
All indicators	not lit

5.4 OPERATING VOLTAGES

The console dc operating voltages are provided by Power Supply **AC-P2000A** and routed by cable to terminal strip CNJ24 on the console upper right mother board (AMC). These voltages shall be measured with the console and power supply connected. Voltage readings must be within the specified limits. Voltage adjustments are made at the power supply.

STEP 1. Turn off console power at the power supply.

STEP 2. Access power supply top cover. Remove eight screws and top cover from power supply.

STEP 3. With two extractors, remove extreme right-hand module from console. Power supply terminal strip CNJ24 is accessible.

STEP 4. Turn on console power.

STEP 5. Refer to Figure 2-5 for orientation. Connect dvm (-) lead to terminal strip pin 12. With (+) lead, measure voltages as listed in chart below. Adjust as required.

TERMINAL STRIP/CNJ24 PIN #	VDC MIN	VDC MAX	POWER SUPPLY ADJUST
6	+4.8	+5.2	RV4
7	+4.995	+5.005	RV1
8	-18.0	-18.5	RV3
9	+18.0	+18.5	RV2
10	+47.5	+48.5	RV5

STEP 6. Turn off console power. Install extreme right-hand module in console. Install and secure power supply top cover.

5.5 METER HOUSING METERS, STATUS INDICATORS AND CLOCK

5.5.1 Mechanical VU or PPM Meters

The following procedure shall be used to calibrate the mechanical VU or PPM meters located in the Meter Housing.

STEP 1. Turn off console power at power supply.

STEP 2. Unfasten two retaining screws and lower hinged panel at rear of Meter Housing.

STEP 3. Observe zero-set condition of each meter. Each pointer shall be aligned exactly with the mark on the low end of the meter scale (for VU meters, **-20**; for PPM meters, **1**). Correct an improper zero-set condition with the meter's mechanical adjust screw.

NOTE: A meter that required mechanical adjustment must be calibrated.

STEP 4. Make certain console initial conditions are as specified in paragraph 5.3.

STEP 5. Turn on console power.

STEP 6. For PPM meters only: Observe zero-set condition of each meter.The pointer of each meter must be aligned exactly with the 1 mark on the meter scale. Correct an offset condition by adjusting RV4 on the PPM board attached to the meter.

STEP 7. Procede with **GROUP** Meters Calibration, paragraph 5.5.1.1 or **Left** and **Right** Meters Calibration, paragraph 5.5.1.2.

5.5.1.1 GROUP Meters Calibration

STEP 1. To calibrate either of the four **GROUP** meters, setup the following conditions:

Communications Module
OSCILLATOR section
ON select
x10 select
FREQ 100
ASSIGNMENT section
OSC LVL 0DB
GPS select
MIX deselect
Monitor Module
METER section
MIX A deselect

STEP 2. Pick the I/O connector of the Group module associated with the **GROUP** meter to be calibrated and connect acvm to pins 16 (GROUP OUT HI), 45 (GROUP OUT LO) of that connector.

STEP 3. On Communications module control panel, **ASSIGNMENT** section, set **OSC LVL** for acvm to read +4 dB.

STEP 4. Calibrate the **GROUP** meter as follows:

a. identify potentiometer (POT) associated with the **GROUP** METER to be calibrated:

METER	POT
GROUP 1	PMBRV6
GROUP 2	PMBRV3
GROUP 3	PMBRV5
GROUP 4	PMBRV4

b. VU meters: set POT so that pointer is exactly aligned with meter scale **0**;
PPM meters: set POT so that pointer is exactly aligned with meter scale **4**.

STEP 5. Turn off oscillator, turn off console power, breakdown test setup, close and fasten Meter Housing rear panel.

5.5.1.2 LEFT and RIGHT Meters Calibration

STEP 1. To calibrate the **LEFT** or **RIGHT** meter, setup the following conditions:

Communications Module
OSCILLATOR section
ON select
x10 select
FREQ 100
ASSIGNMENT section
OSC LVL ∞
GPS deselect
MIX select
Monitor Module
METER section
MIX A select

STEP 2. On the Master module I/O connector, connect acvm to the appropriate pins:
for **LEFT** meter - 12 (MIX A L HI), 41 (MIX A L LO)
for **RIGHT** meter - 11 (MIX A R HI), 40 (MIX A R LO)

STEP 3. On Communications module control panel, **ASSIGNMENT** section, set **OSC LVL** for acvm to read +4 dB.

STEP 4. Calibrate the **LEFT** or **RIGHT** meter as follows:

a. identify potentiometer (POT) associated with the METER to be calibrated:

METER	POT
LEFT	PMBRV1
RIGHT	PMBRV2

b. VU meters: set POT so that pointer is exactly aligned with meter scale **0**;
PPM meters: set POT so that pointer is exactly aligned withmeter scale **4**.

STEP 5. Turn off oscillator, turn off console power, breakdown test setup, close and fasten Meter Housing rear panel.

5.5.2 Bar-graph Meters Calibration

The following calibration instructions apply to the **AUX** and **PFL** bar-graph meters located in the Meter Housing. The potentiometers that control calibration are located on the DMB board adjacent to their associated bar-graph meter.

STEP 1. Turn off console power at power supply.

STEP 2. Unfasten two retaining screws and lower hinged panel at rear of Meter Housing. Look into the rear of the housing. There are circular openings at the extreme left-hand end of the front metal plate. Slotted openings are at the extreme right-hand end.These holes access the front plex panel.

CAUTION

ANYTHING OTHER THAN THE ERASER END OF A PENCIL USED TO APPLY PRESSURE TO THE REAR OF THE PLEX PANEL CAN RESULT IN DAMAGE TO THE PANEL.

STEP 3. Insert the eraser end of a wooden pencil through the upper slotted opening at the right hand side of the front metal plate and apply just enough pressure to cause the corner of the plex panel to snap out of place. Repeat this procedure at the other three plex panel access openings and carefully remove plex panel from the housing.DMB board is exposed.

STEP 4. Turn on console power.

STEP 5. Procede with **AUX** Meters Calibration, paragraph 5.5.2.1 or **PFL** Meter Calibration, paragraph 5.5.2.2.

5.5.2.1 AUX Meters Calibration

STEP 1. To calibrate either of the four **AUX** meters, setup the following conditions:

Communications Module	
OSCILLATOR section	
ON	select
x10	select
FREQ	**100**
ASSIGNMENT section	
OSC LVL	**0DB**
S1	select
S2	select
S3	select
GPS	deselect
Monitor Module	
METER section	
MIX A	select
SEL	deselect

STEP 2. On the Master module I/O connector, connect acvm to the appropriate pins:

for **AUX 1L** meter - 16 (SEND 1 L HI),
45 (SEND 1 L LO)
for **AUX 1R** meter - 15 (SEND 1 R HI),
45 (SEND 1 R LO)
for **AUX 2** meter - 14 (SEND 2 HI),
43 (SEND 2 LO)
for **AUX 3** meter - 13 (SEND 3 HI),
42 (SEND 3 LO)

STEP 3. On Communications module control panel, **ASSIGNMENT** section, set **OSC LVL** for acvm to read +4 dB.

STEP 4. Calibrate the **AUX** meter as follows:

a. identify potentiometer (POT) associated with the AUX METER to be calibrated:

METER	POT
AUX 1L	DMBRV1
AUX 1R	DMBRV2
AUX 2	DMBRV3
AUX 3	DMBRV4

b. set POT so that only green LED segments of the bar-graph are lit;

c. slowly advance POT setting until one red LED lights.

STEP 5. Checkout Status Indicators before installing plex panel, go to paragraph 5.5.3.

5.5.2.2 PFL Meter Calibration

STEP 1. To calibrate the **PFL** meter, setup the following conditions:

Communications Module	
OSCILLATOR section	
ON	select
x10	select
FREQ	**100**
ASSIGNMENT section	
OSC LVL	**0DB**
S1	deselect
S2	deselect
S3	deselect
GPS	select
Monitor Module	
METER section	
MIX A	select
SEL	select

STEP 2. Pick a Group module I/O connector and connect acvm to pins 16 (GROUP OUT HI), 45 (GROUP OUT LO).

STEP 3. On Communications module control panel, **ASSIGNMENT** section, set **OSC LVL** for acvm to read +4 dB.

STEP 4. Calibrate the **PFL** meter as follows:

a. On the acvm monitored Group module, press and hold push switch **PFL** and observe the **PFL** bar-graph;

b. set potentiometer DMBRV5 so that only bar-graph green LED segments are lit;

c. slowly advance DMBRV5 setting until one red LED lights, this is the bar-graph 0 VU scale setting.

STEP 5. Checkout Status Indicators before installing plex panel, go to paragraph 5.5.3.

5.5.3 Status Indicators Checkout

The Meter Housing status indicators should be checked before replacing the plex panel. The following procedure is continued from paragraph 5.5.2.

STEP 1. Prepare Function Generator to output a 1 KHz, 0 dB sine wave test signal. Connect generator output to Communications module I/O connector pins 11 (TB IN 1 HI), 40 (TB IN 1 LO). Indicator **TB.CALLING** is lit.

STEP 2. Disconnect generator.

STEP 3. For the remaining indicators, verify proper response, as follows:

	INDICATOR	RESPONSE
Master Module		
press **REH**	**REH**	lights
press **ON AIR**	**ON AIR**	lights
press & hold **CLR,** press **ON AIR**	**ON AIR**	not lit
Any Input or Group module		
press **PFL**	**PFL/SOLO**	lights
Monitor Module		
press **MON**	**CONTROL L.S. MUTE & STUDIO L.S. MUTE**	lights
press **MON**	**CONTROL L.S. MUTE & STUDIO L.S. MUTE**	not lit

STEP 4. Turn off console power, breakdown test setup, install plex panel on Meter Housing, close and fasten housing rear panel.

5.5.4 Clock Setting and Frequency Check

The Meter Housing Digital Clock is set at a 16 pushbutton keypad mounted on the CLK board inside the housing. The following provides instructions for setting the time and instructions for clock oscillator frequency checkout.

5.5.4.1 Setting Time

STEP 1. Unfasten two retaining screws and lower hinged panel at rear of Meter Housing. The CLK board is at the left of the housing, as seen from the rear.

NOTE: Either go to paragraph 5.5.4.2 for frequency check or continue with STEP 2.

STEP 2. Turn on console power at power supply.

STEP 3. In the sequence listed, press the following keypad switches: RESET; T/C; T/C; SET.

STEP 4. Press DAY repeatedly until the correct day is displayed on the clock.

STEP 5. Press SET to validate and set the day.

STEP 6. Repeat STEP 3.

STEP 7. With numeric keys, enter the time as a six digit number in the format HH:MM:SS, leading zeroes are required.

STEP 8. Press SET to validate and set the time.

STEP 9. Close and fasten Meter Housing rear panel.

5.5.4.2 Clock Oscillator Frequency Check

STEP 1. Refer to STEP 1, paragraph 5.5.4.1.

STEP 2. Turn on console power at power supply.

STEP 3. Equip Frequency Counter with Oscilloscope Probe and monitor frequency at CLKIC2-12.

STEP 4. On keypad, press and hold **RESET**. Observe counter reading. Frequency shall be 32,767.72 Hz. If not, adjust CLKC5 using a non-metallic adjustment tool to achieve proper reading.

STEP 5. Remove tool and observe counter reading. If necessary, adjust CLKC5 again. Repeat until counter reads precisely 32,767.72 Hz. Release **RESET**.

STEP 6. Return to STEP 3, paragraph 5.5.4.1, or, close and fasten Meter Housing rear panel.

5.6 COMMUNICATIONS MODULE

Checkout and adjustment procedures for the test oscillator, noise generators, talkback microphone and slate oscillator circuits contained on the Communications module CMM board are detailed in the following paragraphs.

5.6.1 Preliminary Setup

STEP 1. Turn off console power at power supply.

STEP 2. Using two extractors, remove Communications module from the console and replace it with the extender card. Connect module to the extender.

STEP 3. Make certain console initial conditions are as specified in paragraph 5.3.

STEP 4. Turn on console power.

5.6.2 Test Oscillator and Noise Generators

STEP 1. Complete Preliminary Setup, paragraph 5.6.1.

STEP 2. Make certain Master module Fader is set to 0.

STEP 3. On Communications module control panel, ASSIGNMENT section,- set OSC LVL to center (detent) position, select MIX.

STEP 4. Connect acvm (+) to Master module I/O connector pin 12 (MIX A L HI), and acvm (-) to pin 41 (MIX A L LO).

STEP 5. On Communications module control panel, **OSCILLATOR** section, select **ON** (turn on oscillator). Read +4 dB on acvm. If required, adjust CMMRV6 for +4 dB reading on acvm. Turn off oscillator.

STEP 6. Replace acvm with Frequency Counter.

STEP 7. On Communications module control panel:

a. **ASSIGNMENT** section - make certain **MIX** is selected, set **OSC LVL** to **0DB**;

b. **OSCILLATOR** section - set **FREQ** to **15**, select **x1**, select **ON** (turn on oscillator).

STEP 8. Refer to chart below. For each multiplier switch selected, rotate **FREQ** through each of its three positions and read frequency on the counter. Frequency readings must be within range, as listed.

NOTE: To drive the counter, it may be necessary to set CMMRV3 fully clockwise.

Select	Counter reading @ **FREQ** setting		
multiplier	**15**	**100**	**150**
x1	13.5 to 16.5 Hz	90.0 to 110 Hz	135.0 to 165.0 Hz
x10	135.0 to 165.0 Hz	0.9 to 1.1 KHz	1.35 to 1.65 KHz
x100	1.35 to 1.65 KHz	9.0 to 11.0 KHz	13.5 to 16.5 KHz

STEP 9. Set **FREQ** to **100**, select **x1**.

STEP 10. Replace counter with acvm, see STEP 3.

STEP 11. Adjust CMMRV3 for acvm reading of 0+/-0.2 dB.

STEP 12. Remove acvm from test setup.

STEP 13. On Communications module control panel:

a. **ASSIGNMENT** section - deselect **MIX**, select **GPS**;

b. **OSCILLATOR** section - select **WHT**.

STEP 14. Observe four Group meters in Meter Housing:

VU meters shall read -5;
PPM meters shall read 3.75;

If not, adjust CMMRV7 for proper reading.

STEP 15. Select **PINK**. Observe Group meters:

VU meters, pointer fluctuates at approximately -5;
PPM meters, pointer fluctuates at approximately 3.75.

STEP 16. Procede with paragraph 5.6.3, **OR**, turn off oscillator, turn off console power and install Communications module in console.

5.6.3 Talkback Microphone and Slate Oscillator Level Adjustments

STEP 1. Complete Preliminary Setup, paragraph 5.6.1.

STEP 2. Disconnect Talkback Microphone harness from CMMCNJ1.

NOTE: Harness blue wire mates with CMMCNJI pin 3.

STEP 3. Prepare Function Generator to output a 1 KHz, -50 dB sine wave test signal. Connect generator output to CMMCNJ1 pin 3 and CMMTP13 (ground).

STEP 4. Connect acvm to CMMTP2 and CMMTP13 (ground).

STEP 5. On Communications module control panel, **TALKBACK SELECT** section, press and hold topmost push switch **EXT**. Read -6 dB on acvm. If not, adjust CMMRV4 for -6 dB reading. Release **EXT**.

STEP 6. Remove generator from test setup.

STEP 7. Connect Talkback Microphone harness to CMMCNJ1.

STEP 8. Connect Frequency Counter to CMMTP3 and CMMTP13 (ground).

STEP 9. Set CMMRV5 fully clockwise. Counter shall read 17 +/-1 Hz.

STEP 10. Remove counter from test setup.

STEP 11. Disconnect acvm lead from CMMTP2 and connect lead to CMMTP3.

STEP 12. Adjust CMMRV5 for acvm reading of -20 dB

STEP 13. Turn off console power. Breakdown test setup. Install Communications module in console.

5.7 MONITOR MODULE

The threshold level of the **TB. CALLING** indicator drive circuit is adjusted by RV4 on Monitor module board TVM.

STEP 1. Turn off console power at power supply.

STEP 2. Using two extractors, remove Monitor module from the console and replace it with the extender card. Connect module to the extender.

STEP 3. Make certain module initial conditions are as specified in paragraph 5.3.3.

STEP 4. Turn on console power.

STEP 5. Prepare Function Generator to output a 1 KHz, -12 dB, sine wave test signal. Connect generator output to Communications module I/O connector pins 8 (TB IN 4 HI), 37 (TB IN 4 LO). **TB. CALLING** indicator in meter housing is lit.

STEP 6. Adjust TVMRV4 to turn off indicator, then slowly reset TVMRV4 to just where the indicator lights.

STEP 7. Turn off console power. Install Monitor module in console.

5.8 INPUT MODULES (Mono)

The following test and adjustment procedures apply to all mono Input modules used in the console. Adjustment controls and test points, as indicated in these procedures, are located on the Input module boards MOM and VCA.

5.8.1 Preliminary Setup

STEP 1. Turn off console power at power supply.

STEP 2. Using two extractors, remove Input module to be tested and replace it with the extender card. Connect module to the extender.

STEP 3. Connect wire link between Input module I/O connector pins7 (PATCH SEND) and 36 (PATCH RETURN).

STEP 4. Make certain console intitial conditions are as specified in paragraph 5.3.

STEP 5. Turn on console power.

STEP 6. For modules equipped with mechanical VU meters: Observe VU meters for pointer bounce while continually increasing and decreasing the Input Trimmer setting. If necessary, continue varying trimmer setting and adjust EMNRV1 to overcome pointer bounce.

5.8.2 VCA Gain And Distortion Levels Checkout

STEP 1. Complete Preliminary Setup, paragraph 5.8.1.

STEP 2. Prepare Function Generator to output a 1 KHz, +4 dB sine wave test signal. Connect generator output to Input module I/O connector pins 13 (INPUT B HI), 42 (INPUT B LO), 41 (INPUT B SHIELD).

STEP 3. Connect acvm to MOMTP7 and MOMTP20 (ground). Read -2 dB on acvm. If not, adjust Input module Line Input Control to achieve the acvm reading of -2 dB.

STEP 4. Change acvm connection from MOMTP7 to MOMTP6. Set Input module Fader to **12**, acvm should read +10 dB. If necessary, adjust VCARV2 for acvm reading of +10 dB.

STEP 5. Set Fader to **0**. Read -2 dB on acvm.

STEP 6. Remove generator from test setup.

STEP 7. Prepare Distortion Analyzer to output a 1 KHz, 0 dB sine wave test signal. Prepare analyzer input section to read THD.

STEP 8. Connect analyzer output section to Input module I/O connector pins13 (INPUT B HI), 42 (INPUT B LO), 41 (INPUT B SHIELD). Connect analyzer input section to MOMTP6 and MOMTP20 (ground).

STEP 9. Ensure minimum distortion level by observing the THD level reading on the analyzer while adjusting VCARV1. The distortion level should be minimized at the initial setting, or at no greater than 1/4 turn deviation. If deviation is greater than 1/4 turn, redo STEPS 2 through 6.

STEP 10. Proceed with paragraph 5.8.3, **OR**, turn off power, remove wire from Input module I/O connector, breakdown test setup, install module in console.

5.8.3 PK Indicator Threshold Adjustment

STEP 1. Complete Preliminary Setup, paragraph 5.8.1.

STEP 2. Prepare Function Generator to output a 1 KHz, 0 dB sine wave test signal. Connect generator output to Input module I/O connector pins 13 (INPUT B HI), 42 (INPUT B LO), 41 (INPUT B SHIELD).

STEP 3. On Input module control panel, assignment section, select **MIX**.

STEP 4. Observe Meter Housing **LEFT** and **RIGHT** meters. Set Input module Fader to achieve a meter reading appropriate to the scale used: VU meters, 0; PPM meters, 5

STEP 5. Connect acvm (+) to VCA board CNJ6 pin 1 and (-) to pin 7 (ground). Adjust generator output for acvm reading of +14 dB. Then slowly adjust MOMRV9 until the PK indicator LED just turns on.

STEP 6. Proceed with paragraph 5.8.2, **OR**, turn off power, remove wire link from Input module I/O connector, breakdown test setup, install module in console.

5.9 STEREO INPUT MODULES

The following test and adjustment procedures apply to all Stereo Input modules used in the console. Adjustment controls and test points, as indicated in these procedures, are located on the SNQ and two VCA boards of the Stereo Input module.

5.9.1 Preliminary Setup

STEP 1. Turn off console power at power supply.

STEP 2. Using two extractors, remove Stereo Input module to be tested and replace it with the extender card. Connect module to the extender.

STEP 3. Make certain console intitial conditions are as specified in paragraph 5.3.

STEP 4. Turn on console power.

5.9.2 VCA Gain And Distortion Levels Checkout

STEP 1. Complete Preliminary Setup, paragraph 5.9.1.

STEP 2. Prepare Function Generator to output a 1 KHz, 0 dB sine wave test signal. Connect generator output to Stereo Input module I/O connector pins 16 (INPUT 1 L HI), 45 (INPUT 1 L LO).

STEP 3. Connect acvm to SNQTP8 and SNQTP14 (ground).

STEP 4. Set generator output to +4 dB, acvm should read -2 dB. If necessary, adjust Input Level Control to achieve the acvm reading of -2 dB.

STEP 5. Change acvm connection from SNQTP8 to SNQTP4. Set Stereo Input module Fader to **12**, acvm should read +10 dB. If necessary, adjust VCA(1)RV2 for acvm reading of +10 dB.

STEP 6. Connect generator output to Stereo Input module I/O connector pins 13 (INPUT 1 R HI), 42 (INPUT 1 R LO).

STEP 7. Change acvm connection from SNQTP4 to SNQTP10. Set generator output to +4 dB, acvm should read -2 dB. If necessary, adjust Input Level Control to achieve the acvm reading of-2 dB.

STEP 8. Change acvm connection from SNQTP10 to SNQTP3. Set Stereo Input module Fader to **12**, acvm should read +10 dB. If necessary, adjust VCA(2)RV2 for acvm reading of +10 dB.

STEP 9. Remove generator from test setup.

STEP 10. Prepare Distortion Analyzer to output a 1 KHz, 0 dB sine wave test signal. Prepare analyzer input section to read THD.

STEP 11. Connect analyzer output section to Stereo Input module I/O connector pins 16 (INPUT 1 L HI), 45 (INPUT 1 L LO). Connect analyzer input section to SNQTP4 and SNQTP14 (ground).

STEP 12. Ensure minimum distortion level by observing the THD level reading on the analyzer while adjusting VCA(1)RV1. The distortion level should be minimized at the initial setting, or at no greater than 1/4 turn deviation. If deviation is greater than 1/4 turn, redo STEPS 2 through 9.

STEP 13. Change analyzer output section connections to I/O connector pins 13 (INPUT 1 R HI), 42 (INPUT 1 R LO). Change analyzer input section connections to SNQTP3 and SNQTP14 (ground).

STEP 14. Ensure minimum distortion level by observing the THD level reading on the analyzer while adjusting VCA(2)RV1. The distortion level should be minimized at the initial setting, or at no greater than 1/4 turn deviation. If deviation is greater than 1/4 turn, redo STEPS 2 through 9.

STEP 15. Proceed with paragraph 5.9.3, **OR**, turn off power, breakdown test setup, install module in console.

5.9.3 PK Indicator Threshold Adjustment

STEP 1. Complete Preliminary Setup, paragraph 5.9.1.

STEP 2. Prepare Function Generator to output a 1 KHz, 0 dB sine wave test signal. Connect generator output to Stereo Input module I/O connector pins 16 (INPUT 1 L HI), 45 (INPUT 1 L LO).

STEP 3. On Stereo Input module control panel, assignment section, select **MIX**.

STEP 4. Observe Meter Housing **LEFT** and **RIGHT** meters. Set Stereo Input module Fader to achieve a meter reading appropriate to the scale used: VU meters, 0; PPM meters, 5

STEP 5. Connect acvm (+) to VCA board CNJ6 pin 1 and (-) to pin 7 (ground). Adjust generator output for acvm reading of +14 dB. Then slowly adjust SNQRV12 until the **PK** indicator LED just turns on.

STEP 6. Proceed with paragraph 5.9.2, **OR**, turn off power, remove wire link from Stereo Input module I/O connector, breakdown test setup, install module in console.

5.10 MASTER MODULE

The following paragraphs provide the procedure for checkout and adjustment of the Master module VCA circuit gain and distortion parameters. The adjustment controls and test points, as indicated in the procedure, are located on the Master module SMM board and two VCA boards.

STEP 1. Turn off console power at power supply.

STEP 2. Using two extractors, remove Master module from console and replace it with the extender card. Connect module to the extender.

STEP 3. Make certain console intitial conditions are as specified in paragraph 5.3.

STEP 4. Turn on console power.

STEP 5. On Communications module control panel:

a. **OSCILLATOR** section - set **FREQ** to **100**, select **x10**, select **ON** (turn on oscillator);
b. **ASSIGNMENT** section - make certain **OSC LVL** is set to **0DB**, select **MIX**.

STEP 6. Connect acvm to SMMTP5 and SMMTP22 (ground). Read -4 dB on acvm. If not, adjust SMMRV5 for acvm reading of -4 dB.

STEP 7. Change acvm connection from SMMTP5 to SMMTP6. Read -4 dB on acvm. If not, adjust SMMRV6 for acvm reading of -4 dB.

STEP 8. Change acvm connection from SMMTP6 to SMMTP7.

STEP 9. Adjust Communications module **OSC LVL** for acvm reading of 0dB.

STEP 10. Change acvm connection from SMMTP7 to SMMTP9. Set Master module Fader to 0. Read 0 dB on acvm. If not, adjust VCA(1)RV2 for acvm reading of 0 dB.

STEP 11. Change acvm connection from SMMTP9 to SMMTP8. Adjust Communications module **OSC LVL** for acvm reading of 0 dB.

STEP 12. Change acvm connection from SMMTP8 to SMMTP10. Read 0 dB on acvm. If not, adjust VCA(2)RV2 for acvm reading of 0 dB.

STEP 13. On Communications module, **ASSIGNMENT** section, deselect **ON** (turn off oscillator).

STEP 14. Prepare Distortion Analyzer to output a 1 KHz, 0 dB sine wave test signal. Prepare analyzer input for distortion reading.

STEP 15. Select a mono or Stereo Input module for test signal input. If a mono Input module is selected: connect a wire link between I/O connector pins 7 (PATCH SEND) and 36 (PATCH RETURN). No wirelink is necessary if a Stereo Input module is selected.

STEP 16. On selected Input module control panel, assignment section, make certain **PAN** (mono) or **BAL** (stereo) is centered and **MIX** is selected.

STEP 17. Inject the analyzer test signal via the selected module's I/O connector:

mono module	13 (INPUT B HI), 42 (INPUT B LO), 41 (INPUT B SHIELD);
stereo module	16 (INPUT 1 L HI), 45 (INPUT 1 L LO) and 13 (INPUT 1 R HI), 42 (INPUT 1 R LO).

STEP 18. Connect analyzer input to SMMTP9 and SMMTP22 (ground).

STEP 19. Ensure minimum distortion level by observing the THD level reading on the analyzer while adjusting Master module VCA(1)RV1. The distortion level should be minimized at the initial setting, or at no greater than 1/4 turn deviation. If deviation is greater than 1/4 turn, redo STEPS 5 through 8 and 11.

STEP 20. Change analyzer input connection from SMMTP9 to SMMTP10.

STEP 21. Ensure minimum distortion level by observing the THD level reading on the analyzer while adjusting Master module VCA(2)RV1. The distortion level should be minimized at the initial setting, or at no greater than 1/4 turn deviation. If deviation is greater than 1/4 turn, redo STEPS 5 through 7, 9, 10 and 11.

STEP 22. Turn off console power, breakdown test setup, install Master module in console. If mono Input module used, remove wire link from I/O connector.

5.11 GROUP MODULES

The following paragraphs provide the procedure for checkout and adjustment of the Group module VCA circuit gain and distortion parameters. The precedure shall be used to checkout all Group modules in the console. Adjustment controls and test points, as indicated in the procedure, are located on a Group module's GRM and VCA boards.

STEP 1. Turn off console power at power supply.

STEP 2. Using two extractors, remove Group module to be tested and replace it with the extender card. Connect module to the extender.

STEP 3. Connect a wire link between test Group module I/O connector pins 7 (GROUP PATCH SEND) and 36 (GROUP PATCH RETURN).

STEP 4. Select a mono or Stereo Input module for test signal input.If a mono Input module is selected: connect a wire link between I/O connector pins 7 (PATCH SEND) and 36 (PATCH RETURN). No wire link necessary if Stereo Input module is used.

STEP 5. Make certain console intitial conditions are as specified in paragraph 5.3.

STEP 6. Turn on console power.

STEP 7. On selected Input module control panel, assignment section, make certain **PAN** (mono) or **BAL** (stereo) is centered. Select **1-2** or **3-4** as determined by the position of the Group module under test.

STEP 8. Prepare Function Generator to output a 1 KHz, +4 dB sine wave test signal. Inject test signal via the selected Input module's I/O connector:

mono module	13 (INPUT B HI), 42 (INPUT B LO), 41 (INPUT B SHIELD);
stereo module	16 (INPUT 1 L HI), 45 (INPUT 1 L LO) and 13 (INPUT 1 R HI), 42 (INPUT 1 R LO).

STEP 9. Connect acvm to GRMTP1 and GRMTP15 (ground). Read 0 dB on acvm. If not, adjust GRMRV15 for acvm reading of 0 dB.

STEP 10. Change acvm connection GRMTP1 to GRMTP4.

STEP 11. On selected Input module control panel, input section, adjust Input Level Control for acvm reading of 0 dB.

STEP 12. Change acvm connection from GRMTP4 to GRMTP5.

STEP 13. On Group module control panel, make certain **LEVEL** is centered. Read 0 dB on acvm. If not, adjust VCARV2 for acvm reading of 0 dB.

STEP 14. Set Group module **LEVEL** to **0**. Read 0+/-0.2 dB on acvm.

STEP 15. Connect acvm (+) to VCA board CNJ3 pin 1 and (-) to pin 7 (ground). Adjust generator output for acvm reading of +13 dB. Then slowly adjust GRMRV6 until the **PK** indicator LED just turns on.

STEP 16. Remove generator and acvm from test setup.

STEP 17. Remove GRMJW31 or GRMJW32 (whichever is installed) from board.

STEP 18. Prepare Distortion Analyzer to output a 1 KHz, 0 dB sine wave test signal. Prepare analyzer input for distortion reading.

STEP 19. Inject the analyzer test signal via GRMTP4 and GRMTP14 (ground).

STEP 20. Connect analyzer input to GRMTP5 and GRMTP14 (ground).

STEP 21. Ensure minimum distortion level by observing the THD level reading on the analyzer while adjusting Group module VCARV1. The distortion level should be minimized at the initial setting, or at no greater than 1/4 turn deviation. If deviation is greater than 1/4 turn, redo STEPS 7 through 14.

STEP 22. Turn off console power, breakdown test setup, replace GRMJW31 or GRMJW32, remove wire link from Group module I/O connector, install module in console. If mono Input module used, remove wire link from I/O connector.

5.12 DYNAMICS MODULE

5.12.1 Preliminary Setup

STEP 1. Turn off console power at power supply.

STEP 2. Using two extractors, remove Dynamics module from the console and replace it with the extender card. Connect module to the extender.

STEP 3. Select a mono Input module. Connect a wire link between pins 7 (PATCH SEND) and 36 (PATCH RETURN) on the selected module's I/O connector. Connect acvm to pins 7/36 and 23 (ground).

STEP 4. Make certain console initial conditions are as specified in paragraph 5.3.

STEP 5. Turn on console power.

STEP 6. Set Function Generator to output a 1 KHz, 0 dB sine wave test signal. Inject the generator test signal via the selected (see STEP 3) Input module's I/O connector pins 13 (INPUT B HI), 42 (INPUT B LO), 41 (INPUT B SHIELD). Adjust generator output for acvm reading of 0 dB.

STEP 7. On Input module control panel, assignment section, select **MIX.**

STEP 8. On Dynamic module control panel, in each of the four **COMPRESSOR** sections, set conditions as follows: **ATTACK** at **N**; **RELEASE** at **N**; **RATIO** at **5**; **THRESH** at +10; **LIMITER THRESH** at +12; the two **ON** push switches and associated LEDs, not selected, not lit.

STEP 9. Proceed with Limiters Checkout, paragraph 5.12.2 **OR** Compressors Checkout, paragraph 5.12.3.

5.12.2 Limiters Checkout

STEP 1. Complete Preliminary Setup, paragraph 5.12.1.

STEP 2. On selected Input module control panel, set **DYNAMIC** thumb- wheel switch to **1.**

STEP 3. On Dynamic module control panel, **COMPRESSOR 1** section, press **LIMITER** push switch **ON**, associated LED shall light.

STEP 4. On Dynamics module control panel, **COMPRESSOR 1** section, slowly turn **LIMITER THRESH** knob counterclockwise while observing Meter Housing **LEFT** and **RIGHT** meters. Adjust **LIMITER THRESH** to achieve meter reading appropriate to the scale used: VU meter, 0; PPM meter, 5.

STEP 5. Set Function Generator output level for acvm reading of +20 dB.

STEP 6. **LEFT** and **RIGHT** meter indications shall be: VU meter, +1; PPM meter, 5.25. If necessary, adjust DYMRV107 to achieve proper reading on the **LEFT** and **RIGHT** meters.

STEP 7. Press **LIMITER** push switch **ON**, associated LED is not lit.

STEP 8. Apply instructions given in STEPS 2 through 7 to the remaining three **COMPRESSOR** sections. Applicable setup conditions and adjustment components are as follows:

Checkout Dynamics Module **COMPRESSOR** section	Set Input Module **DYNAMICS** thumbwheel	Adjust if necessary DYM
2	2	RV207
3	3	RV307
4	4	RV407

STEP 9. Set generator output level for acvm reading of 0 dB. Proceed with Compressor Checkout, paragraph 5.12.3, **OR,** turn off power, breakdown test setup, remove wire link from input module I/O connector, install Dynamic module in console.

5.12.3 Compressors Checkout

STEP 1. Complete Preliminary Setup, paragraph 5.12.1.

STEP 2. On selected Input module control panel, set **DYNAMIC** thumbwheel switch to 1. Set Fader to achieve **LEFT** and **RIGHT** meter reading appropriate to the scale used: VU meter, 0; PPM meter, 5.

STEP 3. On Dynamic module control panel, **COMPRESSOR 1** section, press **COMPRESSOR** push switch **ON**, associated LED shall light. **LEFT** and **RIGHT** meter reading is offset.

STEP 4. Adjust **COMPRESSOR THRESH** control to reset **LEFT** and **RIGHT** meters to: VU meter, 0; PPM meter, 5.

STEP 5. Set Function Generator output level for acvm reading of +20 dB.

STEP 6. On Dynamic module control panel, observe **GAIN REDUCTION** bar-graph meter. Meter shall indicate a reading between 15 and 18 on the scale. If not, adjust DYMRV108 to achieve proper meter reading.

STEP 7. Press **COMPRESSOR** push switch **ON,** associated LED is not lit.

STEP 8. Apply instructions given in STEPS 2 through 7 to the remaining three **COMPRESSOR** sections. Applicable setup conditions and adjustment components are as follows:

Checkout Dynamics Module **COMPRESSOR** section	Set Input Module **DYNAMICS** thumbwheel	Adjust if necessary DYM
2	2	RV208
3	3	RV308
4	4	RV408

STEP 9. Set generator output level for acvm reading of 0 dB. Proceed with Limiter Checkout, paragraph 5.12.2, **OR,** turn off power, breakdown test setup, remove wire link from input module I/O connector, install Dynamic module in console.

SECTION 6

MXBK-EI21 EDITOR INTERFACE

6.1 INTRODUCTION

MXB-EI21 Editor Interface is designed for use with SONY **BVE-3000** and **BVE-5000** editors and with parallel-controlled IEC and GVG editors. Connections to the SONY editors are made via a 50-pin connector, while those to IEC or GVG editors are made via a 25-pin connector, both connectors are mounted at the rear of the console on the neck of the Meter Housing (Figure 6-1).

6.1.1 MXBK-EI21 Configuration Jumpers

The Editor Interface can control up to eight channel (Input, Stereo Input or Group) modules, and these can be installed in any eight of console locations 1 through 16 in **MXP-2916** and **MXP-2936** or locations 11 through 30 in the **MXP-2926**, selection of the desired locations being made possible by means of jumpers on the Interface card.

On the card, two rows of jumper pin pairs are labelled CNJ1 and CNJ2, each set of pins being arranged as shown in Figure 6-2. The pins on CNJ1 are used to select the channel locations, while those on CNJ2 steer signals to the VCA's in the modules at the selected locations. It is most important to note that the jumper arrangements on CNJ2 must duplicate EXACTLY those installed on CNJ1 for signal steering. Otherwise, the VCA control signals will be applied to channels that are not under editor control.

CAUTION

THE JUMPER AT LOCATION "Q" ON CNJ1 AND CNJ2 IS NOT ASSOCIATED WITH INTERFACE CARD CONFIGURATION. DO NOT INSTALL A JUMPER AT THIS POINT.

Table 6-1 lists the editor channels and locations appropriate to the three console versions, and this data can be used to determine the required jumper configuration. As a typical example, let it be assumed that editor channel 3 (pin 6) will be used to control the module in location 3 (pin 5). All that would be required in this case would be to connect pin 5 to pin 6, which is easily accomplished by means of a simple jumper block.

In the somewhat more complex case where it is required, say, to have editor channel 3 control the module in location 5 (pin 9), the same principle applies, and the requirement can be met by connecting pin 3 to pin 9. However, since these two pins are not opposite each other, the jumper block will not suffice, and the connection must be made by means of a wire link.

Figure 6-3 illustrates two Interface programming examples. In Figure 6-3 (A), jumper blocks are arranged so that the eight editor channels on even-numbered pins 2 through 16 are coupled through jumper blocks to console locations 1 through 8 (locations 11 through 18 in MXP-2926) on odd-numbered pins 1 through 15. Figure 6-3 (B) shows how editor channels 1 through 4 can be directed to locations 1 through 4 (11 through 14 in **MXP-2926**), while channels 13, 14, 15 and 16 are fed to locations 8, 7, 6 and 5, respectively (locations 18, 17, 16 and 15 in **MXP-2926**). An arrangement of this nature would be suitable where the four Group modules are installed together at the right-hand end of the console.

An example of the use of wire links is given in Figure 6-4. In this illustration, editor channels 3 through 8 are directed to locations 3 through 8 in the same manner as shown in Figure 6-3 (A). However, channel 1 is fed to location 16 by the link between pins 2 and 31, and channel 2 is coupled to location 17 by the link between pins 4 and 2

6.1.2 Editor to Console Connections

As has been stated previously, interconnections between the editor and the console are made at the rear of the Meter Housing neck via either one of two connectors, the 25-pin connector being used for IEC/GVG editors and the 50-pin connector being used for SONY **BVE-3000** and **BVE-5000** editors. All of the appropriate editing signals are listed in Table 6-2, together with their connection points in both the 25-pin and 50-pin configurations. It is important to note that some of the functions used in IEC and GVG editors are not required for the SONY types.

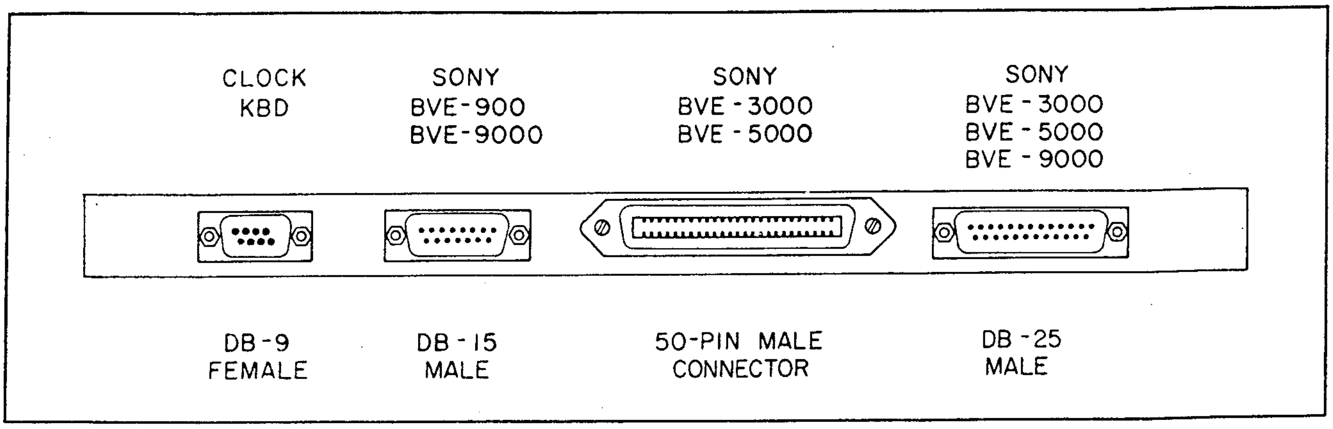

CLOCK
KBD
SONY
BVE-900
BVE-9000
SONY
BVE-3000
BVE-5000
SONY
BVE-3000
BVE-5000
BVE-9000
DB-9
FEMALE
DB-15
MALE
50-PIN MALE
CONNECTOR
DB-25
MALE

Figure 6-1. MXBK-EI21 Connectors

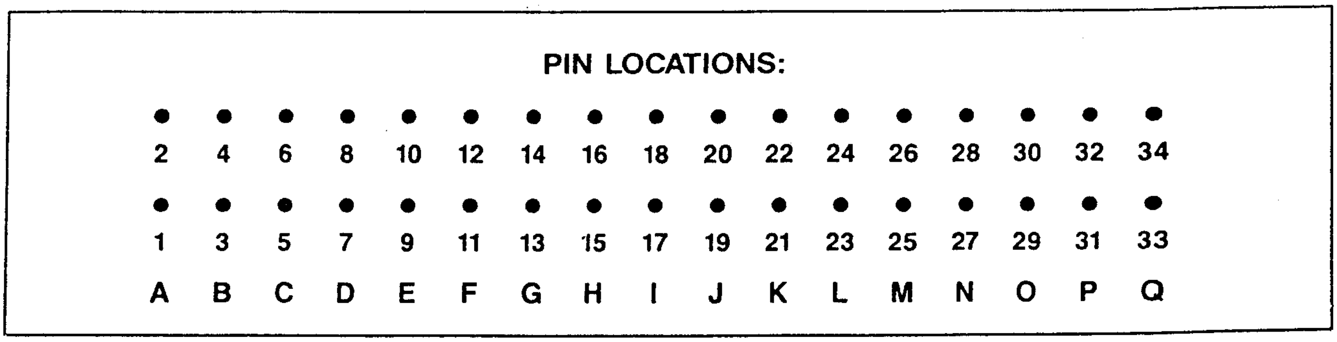

PIN LOCATIONS:
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33
A B C D E F G H I J K L M N O P Q

Figure 6-2. Jumper Pin Locations

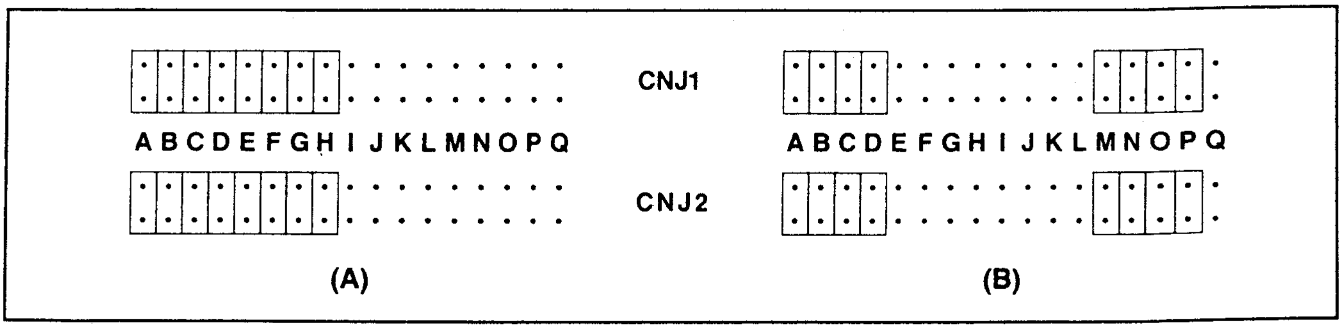

CNJ1
A B C D E F G H I J K L M N O P Q
CNJ2
(A)
A B C D E F G H I J K L M N O P Q
(B)

Figure 6-3. Jumper Configuration Examples

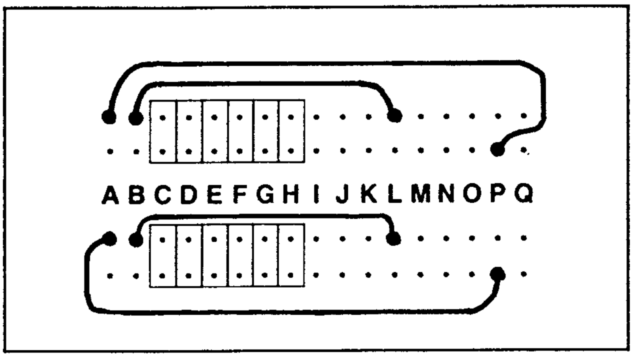

A B C D E F G H I J K L M N O P Q

Figure 6-4. Wire Links

PIN	EDITOR FUNCTION	MXP-2916/2936	MXP-2926
1		LOCATION 1 OUT	LOCATION 11 OUT
2	CHANNEL 1 IN		
3		LOCATION 2 OUT	LOCATION 12 OUT
4	CHANNEL 2 IN		
5		LOCATION 3 OUT	LOCATION 13 OUT
6	CHANNEL 3 IN		
7		LOCATION 4 OUT	LOCATION 14 OUT
8	CHANNEL 4 IN		
9		LOCATION 5 OUT	LOCATION 15 OUT
10	CHANNEL 5 IN		
11		LOCATION 6 OUT	LOCATION 16 OUT
12	CHANNEL 6 IN		
13		LOCATION 7 OUT	LOCATION 17 OUT
14	CHANNEL 7 IN		
15		LOCATION 8 OUT	LOCATION 18 OUT
16	CHANNEL 8 IN		
17		LOCATION 9 OUT	LOCATION 19 OUT
18		LOCATION 20 OUT	LOCATION 30 OUT
19		LOCATION 10 OUT	LOCATION 20 OUT
20		LOCATION 19 OUT	LOCATION 29 OUT
21		LOCATION 11 OUT	LOCATION 21 OUT
22		LOCATION 18 OUT	LOCATION 28 OUT
23		LOCATION 12 OUT	LOCATION 22 OUT
24		LOCATION 17 OUT	LOCATION 27 OUT
25		LOCATION 13 OUT	LOCATION 23 OUT
26	CHANNEL 8 IN		
27		LOCATION 14 OUT	LOCATION 24 OUT
28	CHANNEL 7 IN		
29		LOCATION 15 OUT	LOCATION 25 OUT
30	CHANNEL 6 IN		
31		LOCATION 16 OUT	LOCATION 26 OUT
32	CHANNEL 5 IN		

Table 6-1. Editor Functions and Console Locations

SIGNAL FUNCTION	25-PIN CONNECTOR (IEC/GVG EDITOR)	50-PIN CONNECTOR (SONY EDITORS)
IEC/GVG A	1	33
IEC/GVG B	2	Function Not Used
A Cross-point 1	3	1
A Cross-point 2	4	2
A Cross-point 3	5	3
A Cross-point 4	6	4
A Cross-point 5	7	5
A Cross-point 6	8	6
A Cross-point 7	9	7
A Cross-point 8	10	8
B Cross-point 1	11	9
B Cross-point 2	12	10
B Cross-point 3	13	11
B Cross-point 4	14	12
B Cross-point 5	15	13
B Cross-point 6	16	14
B Cross-point 7	17	15
B Cross-point 8	18	16
Analog Ground	19	49
Ext Monitor 1	20	Function Not Used
Ext Monitor 2	21	Function Not Used
N.C.	22	Function Not Used
MUTE	23	Function Not Used
N.C.	24	Function Not Used
N.C.	25	Function Not Used

Table 6-2. MXBK-EI21 Editor Connections

SECTION 7

MXBK-EI22 EDITOR INTERFACE

7.1. INTRODUCTION

Editor Interface **MXBK-EI22** provides compatibility between Sony series **MXP-2900** consoles (**MXP-2916, MXP-2926, MXP-2936**) and Sony Editors **BVE-900, BVE-910, BVE-9000.** An **MXP-2900** series console can be procured with or without **MXBK-EI22** installed. The interface can be procured later and installed by the user.

This document provides the user with a general description of the interface, an installation procedure and explains its function as an integral part of an editing system. Editor configurations, considerations concerning edit systems, and some typical edit setups are also provided in this document.

Contact your Sony representative for information concerning **MXP-2900** series consoles interfacing with video editing equipment produced by other manufacturers.

7.1.1 General Description

The Editor Interface is contained on printed circuit board NIF. When installed, the NIF board resides in the bottom of a MXP-2916/26/36 console and is an integral part of the console. Although a console may be ordered without **MXBK-EI22**, the full compliment of console to interface interconnection cables and three editor entry ports are provided as console standard equipment. The cables are console connected at the factory and stored in the bottom of the console, ready for use. The editor ports are mounted and ready for use.

7.1.2 Function Overview

MXBK-EI22 serves as a decoder and provides the proper routing for VCA and preview signals to the console from an externally connected editing system.

While editing, a number of recorder/player devices (VTR/ATR) can be used. One device will be assigned as the recorder and the others are players. Two preview modes are available; a Fixed Recorder Assignment mode or a Free Recorder Assignment mode. In the Fixed Recorder Assignment mode, recorder assignment is managed by using an audio bay or routing switcher to direct the recorder playback to the console preview inputs. In the Free Recorder Assignment mode, recorder reassignment is accomplished by activating editor control signals that selects a pre-fader signal from the console input channel containing the recorder playback signal and routing it to the preview monitor output.

MXBK-EI22 is jumper configured to implement the following operating modes: Free Recorder Assignment, Parallel, 2-channel (stereo) or 4-channel; Free Recorder Assignment, Binary, 2-channel or 4-channel; Fixed Recorder Assignment, 2-channel or 4-channel.

In Free Recorder Assignment operation, **BVE-9000** editors can output preview control signals in either parallel or binary format. **BVE-900** and **BVE-910** editors can output preview control signals in binary format.

In Fixed Recorder Assignment operation, preview commands are parallel.

7.1.2.1 Free Recorder Assignment, Parallel

In this mode, the interface receives control signals output by the editor in parallel format. The signals are decoded by a Generic Array Logic (GAL) device mounted on the NIF board. In their active state, the parallel formatted signals are decoded as line output monitor commands. When working with the Group modules, separate mutes can be effectively generated for line monitor outputs when the parallel formatted signals are not in their active state. For full featured operation, the audio input signals must be routed through the Group modules to the recorder(s).

7.1.2.2 Free Recorder Assignment, Binary

In this mode, the interface receives control signals output by the editor in binary format. The binary encoded commands from the editor are decoded as line output monitoring, previews or mutes. For full featured operation, the audio input signals must be routed through the Group modules to the recorder(s).

7.1.2.3 Fixed Assignment

In fixed assignment, only external mutes and previews are decoded. Up to four mute commands and four preview commands can be supported by the system.

7.1.3 Block Diagrams

Figure 7-1 is a block diagram of **MXBK-EI22** relative to the console in which it is housed. The relationship between the console editor entry ports and the NIF board is defined in this figure.

Figures 7-2A through 7-2D are interface signal routing diagrams for the various edit system operating modes.

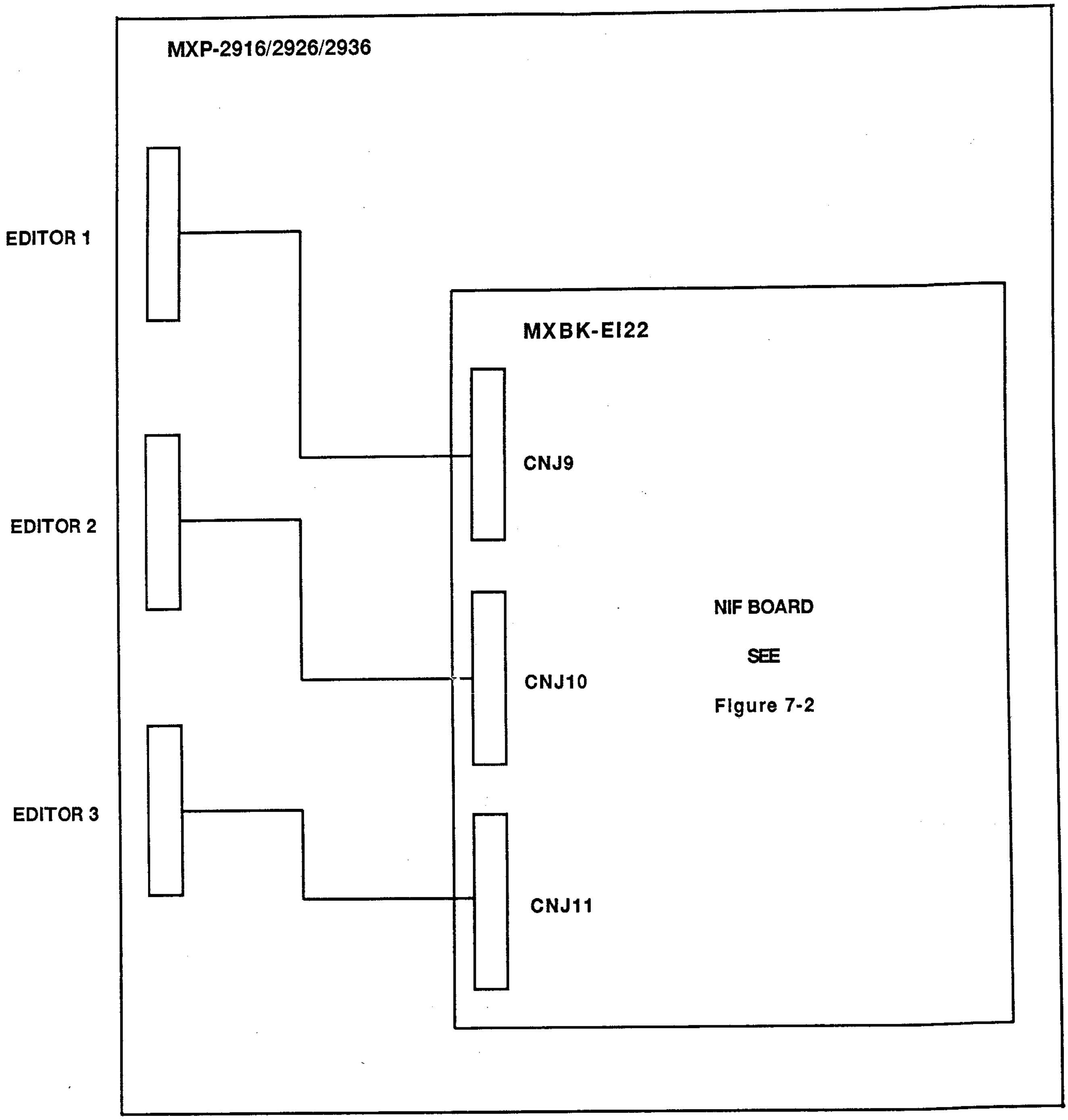

MXP-2916/2926/2936
EDITOR 1
EDITOR 2
EDITOR 3
MXBK-EI22
CNJ9
CNJ10
CNJ11
NIF BOARD
SEE
Figure 7-2

Figure 7-1. MXBK-EI22 Block Diagram

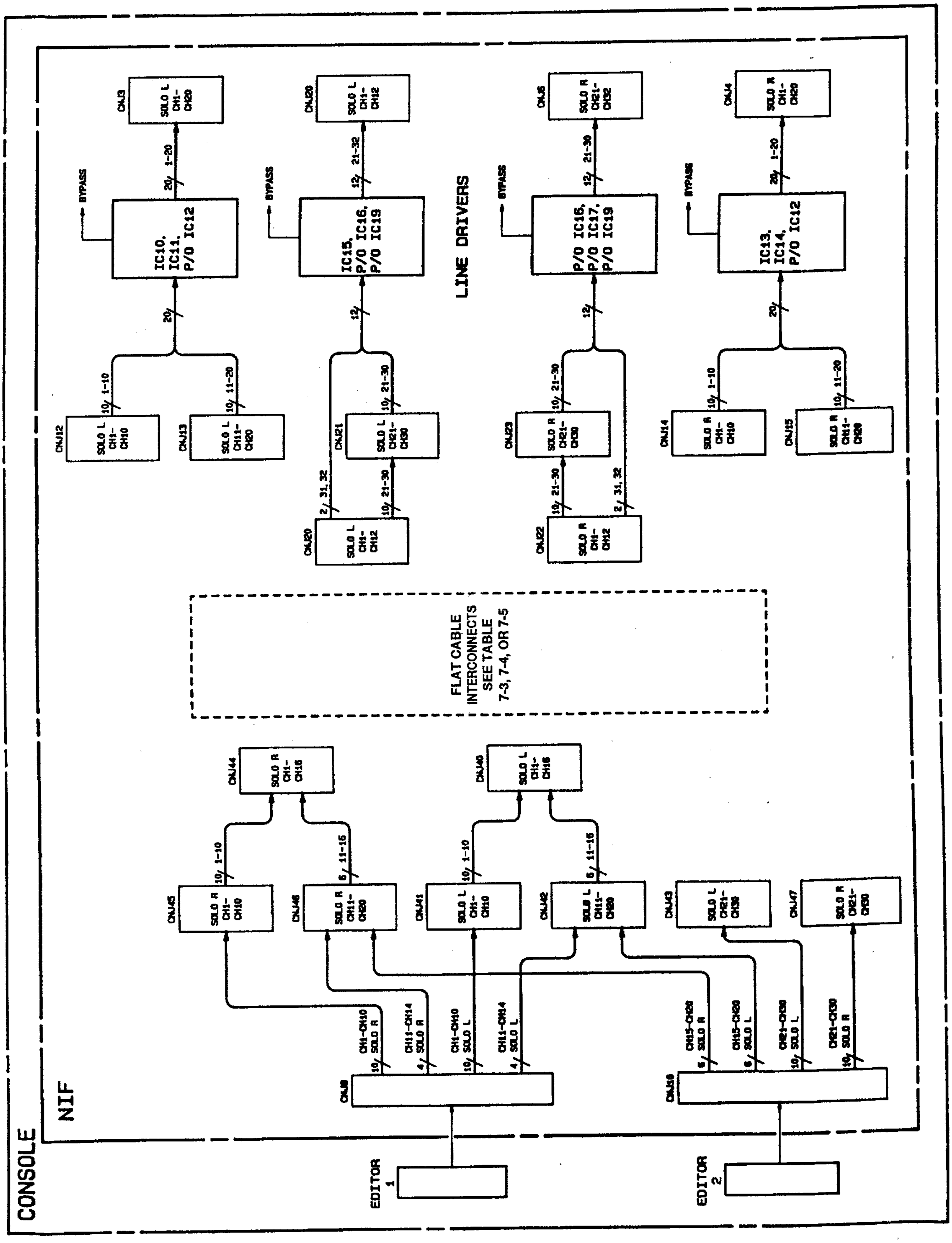

CONSOLE
NIF
EDITOR 1
EDITOR 2
CNJ8
CNJ10
10/ CH1-CH10 SOLO R
4/ CH11-CH14 SOLO R
10/ CH1-CH10 SOLO L
4/ CH11-CH14 SOLO L
6/ CH15-CH20 SOLO R
6/ CH15-CH20 SOLO L
10/ CH21-CH30 SOLO L
10/ CH21-CH30 SOLO R
CNJ45 SOLO R CH1-CH10
CNJ46 SOLO R CH11-CH20
CNJ41 SOLO L CH1-CH10
CNJ42 SOLO L CH11-CH20
CNJ43 SOLO L CH21-CH30
CNJ47 SOLO R CH21-CH30
10/ 1-10
6/ 11-16
CNJ44 SOLO R CH1-CH16
CNJ40 SOLO L CH1-CH16
FLAT CABLE INTERCONNECTS SEE TABLE 7-3, 7-4, OR 7-5
LINE DRIVERS
CNJ12 SOLO L CH1-CH10
CNJ13 SOLO L CH11-CH20
10/ 1-10
10/ 11-20
20/
IC10, IC11, P/O IC12
BYPASS
20/ 1-20
CNJ3 SOLO L CH1-CH20
CNJ20 SOLO L CH1-CH12
2/ 31, 32
10/ 21-30
CNJ21 SOLO L CH21-CH30
12/
IC15, P/O IC16, P/O IC19
12/ 21-32
CNJ22 SOLO R CH1-CH12
CNJ23 SOLO R CH21-CH30
P/O IC16, P/O IC17, P/O IC19
CNJ6 SOLO R CH21-CH32
12/ 21-30
CNJ14 SOLO R CH1-CH10
CNJ15 SOLO R CH11-CH20
IC13, IC14, P/O IC12
CNJ4 SOLO R CH1-CH20

Figure 7-2A. Block Diagram, Preview (SOLO) L/R, Parallel

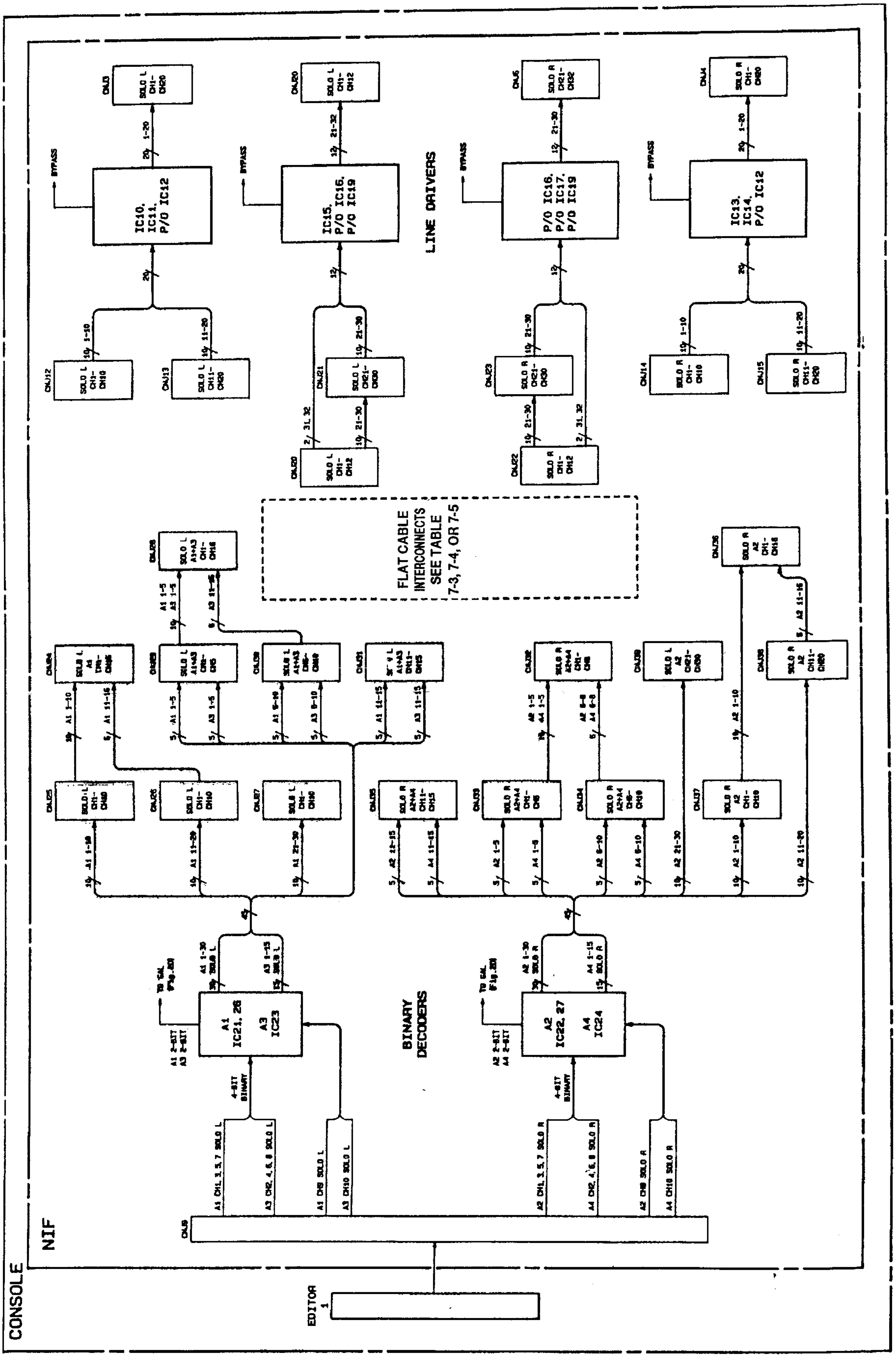

CONSOLE
NIF
EDITOR 1
LINE DRIVERS
BINARY DECODERS
FLAT CABLE INTERCONNECTS SEE TABLE 7-3, 7-4, OR 7-5
IC10, IC11, P/O IC12
IC15, P/O IC16, P/O IC19
P/O IC16, P/O IC17, P/O IC19
IC13, IC14, P/O IC12
A1 IC21, 26 A3 IC23
A2 IC22, 27 A4 IC24
BYPASS
SOLO L
SOLO R
4-BIT BINARY
TO GAL

Figure 7-2B. Block Diagram, Preview (SOLO) L/R, Binary

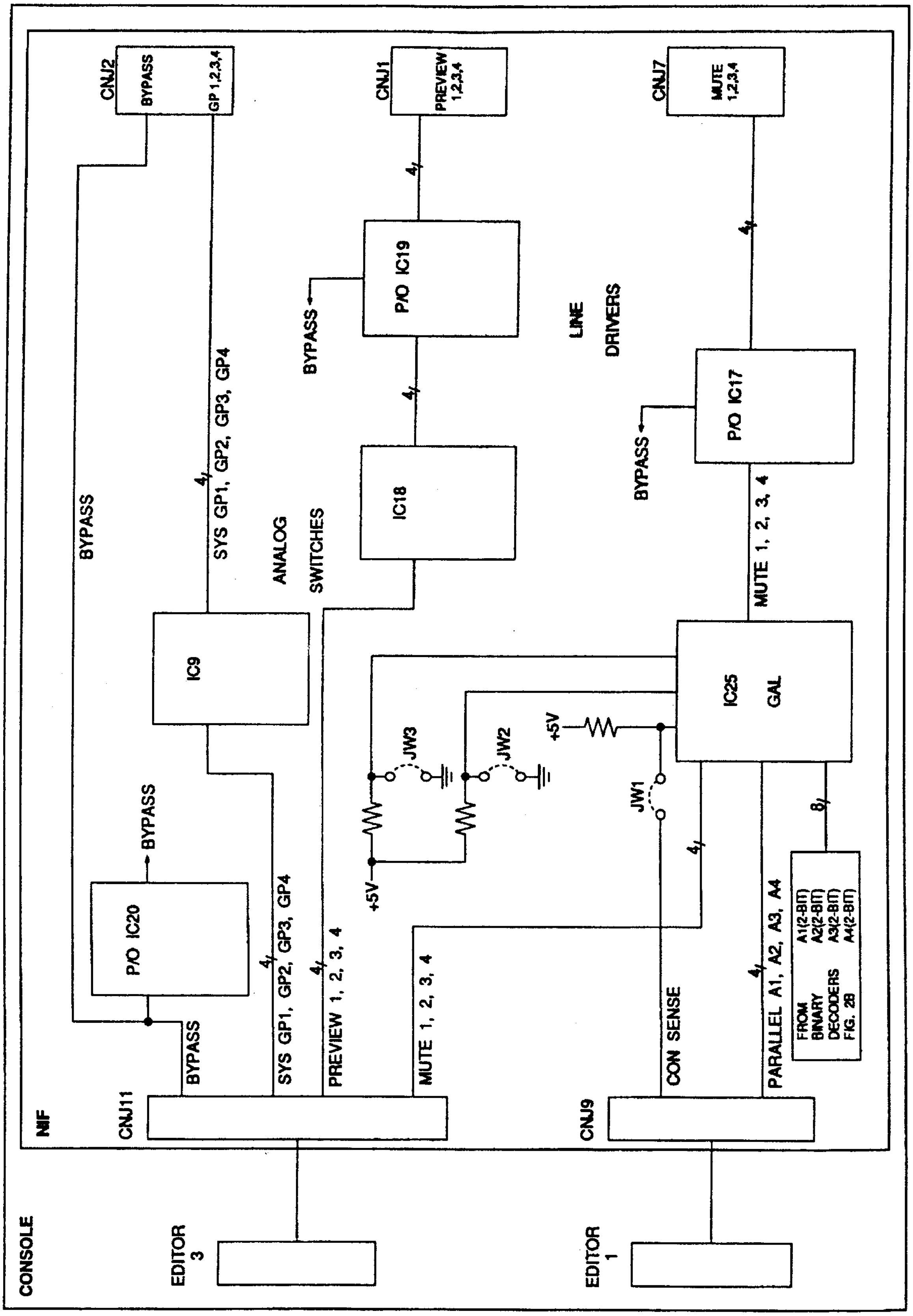

CONSOLE
NIF
EDITOR 3
EDITOR 1
CNJ11
CNJ9
CNJ2
BYPASS
GP 1,2,3,4
CNJ1
PREVIEW 1,2,3,4
CNJ7
MUTE 1,2,3,4
BYPASS
SYS GP1, GP2, GP3, GP4
PREVIEW 1, 2, 3, 4
MUTE 1, 2, 3, 4
CON SENSE
PARALLEL A1, A2, A3, A4
FROM BINARY DECODERS FIG. 2B
A1(2-BIT)
A2(2-BIT)
A3(2-BIT)
A4(2-BIT)
P/O IC20
BYPASS
IC9
BYPASS
SYS GP1, GP2, GP3, GP4
ANALOG SWITCHES
IC18
P/O IC19
BYPASS
LINE DRIVERS
P/O IC17
BYPASS
MUTE 1, 2, 3, 4
IC25 GAL
+5V
JW3
JW2
+5V
JW1
4
8

Figure 7-2C. Block Diagram, Decoding, Mute, Preview, Bypass

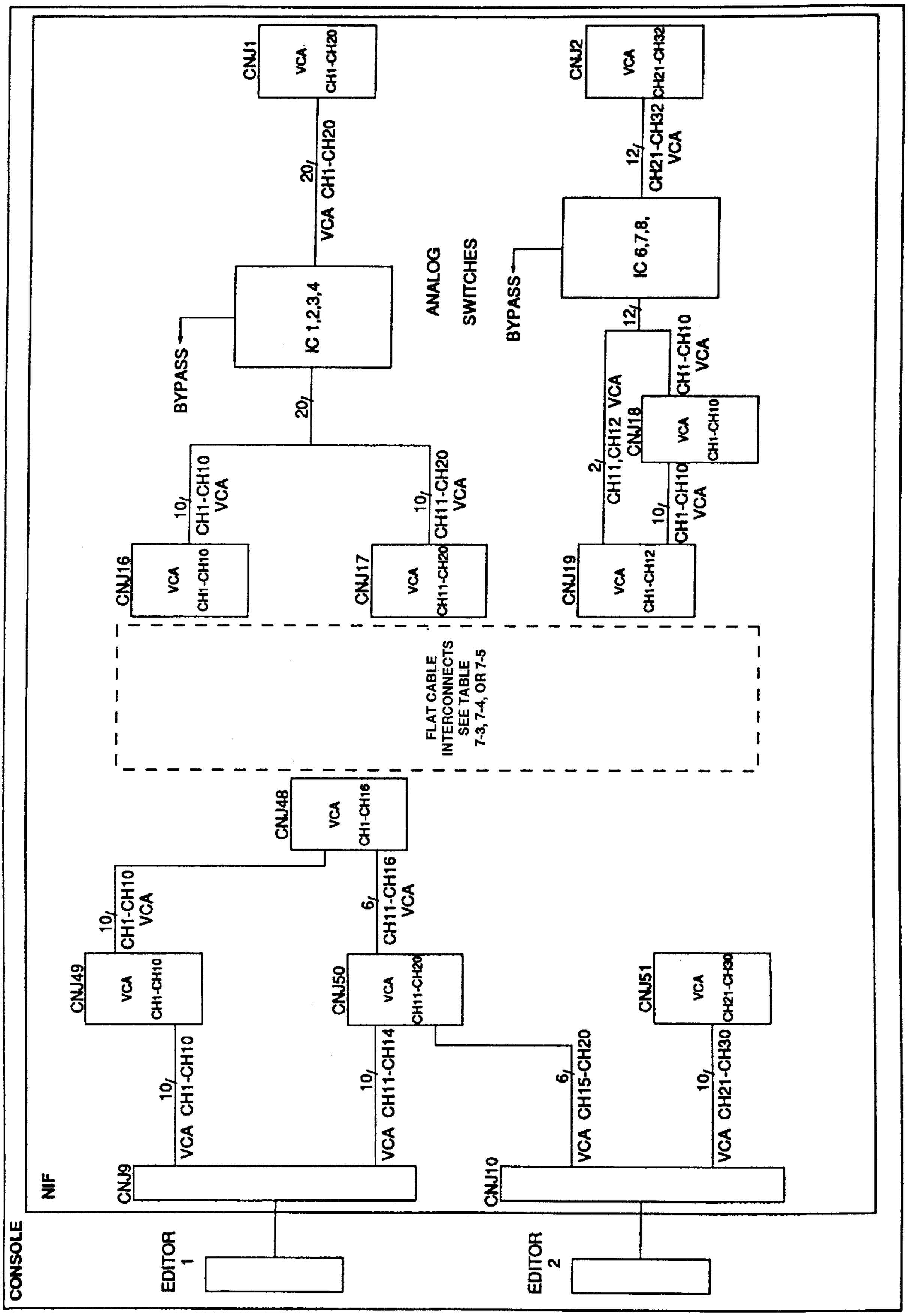

CONSOLE
NIF
EDITOR 1
EDITOR 2
CNJ9
CNJ10
10 VCA CH1-CH10
10 VCA CH11-CH14
6 VCA CH15-CH20
10 VCA CH21-CH30
CNJ49 VCA CH1-CH10
CNJ50 VCA CH11-CH20
CNJ51 VCA CH21-CH30
10 CH1-CH10 VCA
6 CH11-CH16 VCA
CNJ48 VCA CH1-CH16
FLAT CABLE INTERCONNECTS SEE TABLE 7-3, 7-4, OR 7-5
CNJ16 VCA CH1-CH10
CNJ17 VCA CH11-CH20
CNJ19 VCA CH1-CH12
10 CH1-CH10 VCA
10 CH11-CH20 VCA
20
IC 1,2,3,4
BYPASS
20 VCA CH1-CH20
CNJ1 VCA CH1-CH20
ANALOG SWITCHES
2 CH11,CH12 VCA
CNJ18 VCA CH1-CH10
10 CH1-CH10 VCA
CH1-CH10 VCA
12
IC 6,7,8.
BYPASS
12 CH21-CH32 VCA
CNJ2 VCA CH21-CH32

Figure 7-2D. Block Diagram, VCA

7.2. PARTS AND INSTALLATION

7.2.1 Parts

MXBK-EI22 is supplied as listed in Table 7-1.

P/N	ITEM	QTY
T-9483-224-1	COMPLETE PCB, NIF	1
7-682-947-01	Screw, M3 X 6 PSW	6
T-9416-164-1	Cable Assy, NIF 2916	3
T-9416-165-1	Cable Assy, NIF 2926/36	9
T-9416-186-1	Cable Assy, 2916 Preview	2
T-9416-187-1	Cable Assy, 2926/36 Preview	4
T-9416-188-1	Cable Assy, 2916 VCA	1
T-9416-189-1	Cable Assy, 2926/36 VCA	1

Table 7-1. Parts Supplied

7.2.2 Installation

STEP 1. Refer to Table 7-2. Arrange NIF board jumpers appropriate to the assignment mode.

STEP 2. Refer to Table 7-3, 7-4, or 7-5. Make NIF board interconnects applicable to the selected assignment mode and console model.

STEP 3. Remove ten screws and two bottom sub covers from the console.

STEP 4. Position the NIF board with its solder side facing the bottom of the console and with CNJ7 approximately in line with CNJ16 on the console mother board, MBC. Fasten the NIF board in position with six M3 x 6 PSW screws.

STEP 5. Refer to Table 7-6. Make the suitable console to NIF board cable connections.

STEP 6. Replace two console bottom sub covers.

STEP 7. Refer to paragraph 7.2.3. Make certain console module jumpers are as indicated for the applicable operating mode.

7.2.3 Console Modules, Jumpers Preparations

The jumper configurations of certain console modules must be arranged to allow edit system operation. Table 7-7 shows the required conditions for those jumpers specific to editor/console function and briefly describes the purpose of the listed condition. Some jumpers are mutually exclusive and must be set as shown for proper edit function. There are also optional jumper settings that are dependant on user requirements. Variations of optional jumper settings are given and the result briefly described in the PURPOSE column. The user may choose that option which will satisfy the requirement. Comprehensive jumper information for all console modules is given in Section 2.

OPERATING MODE	JUMPER CONDITION	
	IN	OUT
FREE ASSIGNMENT BINARY	JW1, JW2, JW5, JW6	JW3, JW4, JW7, JW8, JW9
FREE ASSIGNMENT PARALLEL	JW1, JW5, JW6	JW2, JW3, JW4, JW7, JW8, JW9
FIXED ASSIGNMENT	JW1, JW2, JW3, JW5, JW6	JW4, JW7, JW8, JW9

Table 7-2. NIF Jumper Configuration

FIXED ASSIGNMENT	MXP-2916/MXP-2926/MXP-2936
PREVIEW CONTROL	VCA CONTROL
NO INTERCONNECTIONS	MXP-2916 CNJ48 to CNJ19 (use cable T-9416-164-1) MXP-2926 CNJ49 to CNJ17 CNJ50 to CNJ18 (use cable T-9416-165-1) MXP-2936 CNJ49 to CNJ16 CNJ50 to CNJ17 CNJ51 to CNJ18 (use cable T-9416-165-1)

Table 7-3. NIF Board Interconnections For Fixed Assignment Mode

FREE ASSIGNMENT			**PARALLEL**
MXP-2916	**PREVIEW CONTROL** use cable T-9416-164-1		**VCA CONTROL** use cable T-9416-164-1
	ODD CHANNELS LEFT	**EVEN CHANNELS RIGHT**	
	CNJ40 to CNJ20	CNJ44 to CNJ22	CNJ48 to CNJ19
MXP-2926	**PREVIEW CONTROL** use cable T-9416-165-1		**VCA CONTROL** use cable T-9416-165-1
	ODD CHANNELS LEFT	**EVEN CHANNELS RIGHT**	
	CNJ41 to CNJ13 CNJ42 to CNJ21	CNJ45 to CNJ15 CNJ46 to CNJ23	CNJ49 to CNJ17 CNJ50 to CNJ18
MXP-2936	**PREVIEW CONTROL** use cable T-9416-165-1		**VCA CONTROL** use cable T-9416-165-1
	ODD CHANNELS LEFT	**EVEN CHANNELS RIGHT**	
	CNJ41 to CNJ12 CNJ42 to CNJ13 CNJ43 to CNJ21	CNJ45 to CNJ14 CNJ46 to CNJ15 CNJ47 to CNJ23	CNJ49 to CNJ16 CNJ50 to CNJ17 CNJ51 to CNJ18

Table 7-4. NIF Board Interconnections For Free Assignment, Parallel Mode

FREE ASSIGNMENT BINARY	MXP-2916					
1-CHANNEL	**PREVIEW CONTROL** use cable T-9416-164-1				**VCA CONTROL** use cable T-9416-164-1	
12 MONO modules Mono signals	**ODD CHANNELS LEFT**		**EVEN CHANNELS RIGHT**			
	CNJ24 to	CNJ20	CNJ36 to	CNJ22	CNJ48 to	CNJ19
2-CHANNEL	**PREVIEW CONTROL** use cable T-9416-186-1				**VCA CONTROL** use cable T-9416-188-1	
12 MONO modules 2-channel signals	**ODD CHANNELS LEFT**		**EVEN CHANNELS RIGHT**		CNJ48 to	CNJ19
	CNJ24 to	CNJ20	CNJ36 to	CNJ22	Pin	Pins
	Pin	Pin	Pin	Pin		
	1	1	1	2	1	1, 2
	2	3	2	4	2	3, 4
	3	5	3	6	3	5, 6
	4	7	4	8	4	7, 8
	5	9	5	10	5	9, 10
	6	11	6	12	6	11, 12
4-CHANNEL	**PREVIEW CONTROL** use cable T-9416-186-1				**VCA CONTROL** use cable T-9416-188-1	
12 MONO modules 4-channel signals	**ODD CHANNELS LEFT**		**EVEN CHANNELS RIGHT**		CNJ48 to	CNJ19
	CNJ28 to	CNJ20	CNJ32 to	CNJ22	Pin	Pins
	Pin	Pin	Pin	Pin		
	1	1	1	2	1	1, 2
	2	3	2	4	2	3, 4
	3	5	3	6	3	5, 6
	4	7	4	8	4	7, 8
	5	9	5	10	5	9, 10
	6	11	6	12	6	11, 12
2-CHANNEL	**PREVIEW CONTROL** use cable T-9416-164-1				**VCA CONTROL** use cable T-9416-164-1	
12 STEREO modules Stereo signals	**ODD CHANNELS LEFT**		**EVEN CHANNELS RIGHT**			
	CNJ24 to	CNJ20	CNJ36 to	CNJ22	CNJ48 to	CNJ19
4-CHANNEL	**PREVIEW CONTROL** use cable T-9416-164-1				**VCA CONTROL** use cable T-9416-164-1	
12 STEREO modules Stereo signals	**ODD CHANNELS LEFT**		**EVEN CHANNELS RIGHT**			
	CNJ28 to	CNJ20	CNJ32 to	CNJ22	CNJ48 to	CNJ19

Table 7-5. (1 of 6) NIF Board Interconnections for Free Assignment, Binary Mode

FREE ASSIGNMENT BINARY	MXP-2926					
1-CHANNEL	**PREVIEW CONTROL** use cable T-9416-164-1				**VCA CONTROL** use cable T-9416-164-1	
20 MONO modules Mono signals	**ODD CHANNELS LEFT**		**EVEN CHANNELS RIGHT**			
	CNJ25 to CNJ13 CNJ26 to CNJ21		CNJ37 to CNJ15 CNJ38 to CNJ 23		CNJ49 to CNJ17 CNJ50 to CNJ18	
2-CHANNEL	**PREVIEW CONTROL** use cable T-9416-187-1				**VCA CONTROL** use cable T-9416-189-1	
20 MONO modules 2-channel signals	**ODD CHANNELS LEFT**		**EVEN CHANNELS RIGHT**		CNJ49 to	CNJ17
					Pin	Pins
	CNJ25 to CNJ13		CNJ37 to CNJ15		1	1, 2
	Pin	Pin	Pin	Pin	2	3, 4
	1	1	1	2	3	5, 6
	2	3	2	4	4	7, 8
	3	5	3	6	5	9, 10
	4	7	4	8		
	5	9	5	10		
						CNJ18
	CNJ25 to CNJ13		CNJ38 to CNJ23			Pins
	Pin	Pin	Pin	Pin	6	1, 2
	1	1	1	2	7	3, 4
	2	3	2	4	8	5, 6
	3	5	3	6	9	7, 8
	4	7	4	8	10	9, 10
	5	9	5	10		
4-CHANNEL	**PREVIEW CONTROL** use cable T-9416-187-1				**VCA CONTROL** use cable T-9416-189-1	
20 MONO modules 4-channel signals	**ODD CHANNELS LEFT**		**EVEN CHANNELS RIGHT**		CNJ49 to	CNJ17
					Pin	Pins
	CNJ29 to CNJ13		CNJ33 to CNJ15		1	1, 2
	Pin	Pin	Pin	Pin	2	3, 4
	1	1	1	2	3	5, 6
	2	3	2	4	4	7, 8
	3	5	3	6	5	9, 10
	4	7	4	8		
	5	9	5	10		
						CNJ18
		CNJ21		CNJ23		Pins
		Pin		Pin	6	1, 2
	6	1	6	2	7	3, 4
	7	3	7	4	8	5, 6
	8	5	8	6	9	7, 8
	9	7	9	8	10	9, 10
	10	9	10	10		

Table 7-5. (2 of 6) NIF Board Interconnections for Free Assignment, Binary Mode

<table>
<tr><th colspan="4">FREE ASSIGNMENT
BINARY MXP-2926 (continued)</th></tr>
<tr><td rowspan="3">2-CHANNEL
20 STEREO modules
Stereo signals</td><td colspan="2">PREVIEW CONTROL
use cable T-9416-165-1</td><td>VCA CONTROL
use cable T-9416-165-1</td></tr>
<tr><td>ODD CHANNELS
LEFT</td><td>EVEN CHANNELS
RIGHT</td><td rowspan="2">CNJ49 to CNJ17
CNJ50 to CNJ18</td></tr>
<tr><td>CNJ25 to CNJ13
CNJ26 to CNJ21</td><td>CNJ37 to CNJ15
CNJ38 to CNJ23</td></tr>
<tr><td rowspan="3">4-CHANNEL
20 STEREO modules
4-channel signals</td><td colspan="2">PREVIEW CONTROL
use cable T-9416-165-1</td><td>VCA CONTROL
use cable T-9416-165-1</td></tr>
<tr><td>ODD CHANNELS
LEFT</td><td>EVEN CHANNELS
RIGHT</td><td rowspan="2">CNJ49 to CNJ17
CNJ50 to CNJ18</td></tr>
<tr><td>CNJ29 to CNJ13
CNJ30 to CNJ21</td><td>CNJ33 to CNJ15
CNJ34 to CNJ23</td></tr>
</table>

Table 7-5. (3 of 6) NIF Board Interconnections for Free Assignment, Binary Mode

FREE ASSIGNMENT

BINARY

MXP-2936

1 CHANNEL 30 STEREO modules Mono signals	**PREVIEW CONTROL** use cable T-9416-165-1				**VCA CONTROL** use cable T-9416-165-1	
	ODD CHANNELS LEFT		**EVEN CHANNELS RIGHT**			
	CNJ25 to CNJ12		CNJ37 to CNJ14		CNJ49 to	CNJ16
	CNJ26 to CNJ13		CNJ38 to CNJ15		CNJ50 to	CNJ17
	CNJ27 to CNJ 21		CNJ39 to CNJ23		CNJ51 to	CNJ18
2-CHANNEL	**PREVIEW CONTROL** use cable T-9416-186-1				**VCA CONTROL** use cable T-9416-188-1	
30 MONO modules 2-channel signals	**ODD CHANNELS LEFT**		**EVEN CHANNELS RIGHT**		CNJ48 to	CNJ16
					Pin	Pins
	CNJ24 to CNJ12		CNJ38 to CNJ14		1	1, 2
	Pin	Pin	Pin	Pin	2	3, 4
	1	1	1	2	3	5, 6
	2	3	2	4	4	7, 8
	3	5	3	6	5	9, 10
	4	7	4	8		
	5	9	5	10		
						CNJ17 Pins
		CNJ13		CNJ15	6	1, 2
		Pin		Pin	7	3, 4
	6	1	6	2	8	5, 6
	7	3	7	4	9	7, 8
	8	5	8	6	10	9, 10
	9	7	9	8		
	10	9	10	10		
						CNJ18 Pins
		CNJ21		CNJ23	11	1, 2
		Pin		Pin	12	3, 4
	11	1	11	2	13	5, 6
	12	3	12	4	14	7, 8
	13	5	13	6	15	9, 10
	14	7	14	8		
	15	9	15	10		

Table 7-5 (4 of 6). NIF Board Interconnections for Free Assignment, Binary Mode

FREE ASSIGNMENT
BINARY

MXP-2936 (continued)

4-CHANNEL	**PREVIEW CONTROL** use cable T-9416-186-1				**VCA CONTROL** use cable T-9416-188-1	
30 MONO modules 4-channel signals	**ODD CHANNELS LEFT**		**EVEN CHANNELS RIGHT**			
	CNJ28 to CNJ12		CNJ32 to CNJ14		CNJ48 to CNJ16	
	Pin	Pin	Pin	Pin	Pin	Pins
	1	1	1	2	1	1, 2
	2	3	2	4	2	3, 4
	3	5	3	6	3	5, 6
	4	7	4	8	4	7, 8
	5	9	5	10	5	9, 10
		CNJ13		CNJ15		CNJ17
		Pin		Pin		Pins
	6	1	6	2	6	1, 2
	7	3	7	4	7	3, 4
	8	5	8	6	8	5, 6
	9	7	9	8	9	7, 8
	10	9	10	10	10	9, 10
		CNJ21		CNJ23		CNJ18
		Pin		Pin		Pins
	11	1	11	2	11	1, 2
	12	3	12	4	12	3, 4
	13	5	13	6	13	5, 6
	14	7	14	8	14	7, 8

2 -CHANNEL 30 STEREO modules Stereo signals	**PREVIEW CONTROL** use cable T-9416-165-1		**VCA CONTROL** use cable T-9416-165-1
	ODD CHANNELS LEFT	**EVEN CHANNELS RIGHT**	
	CNJ25 to CNJ12	CNJ37 to CNJ14	CNJ49 to CNJ16
	CNJ26 to CNJ13	CNJ38 to CNJ15	CNJ50 to CNJ17
	CNJ27 to CNJ 21	CNJ39 to CNJ23	CNJ51 to CNJ18

Table 7-5 (5 of 6). NIF Board Interconnections for Free Assignment, Binary Mode

FREE ASSIGNMENT **BINARY**	**MXP-2936** (continued)		
4 -CHANNEL 30 STEREO modules 4-channel signals	**PREVIEW CONTROL** use cable T-9416-165-1		**VCA CONTROL** use cable T-9416-165-1
	ODD CHANNELS LEFT	**EVEN CHANNELS RIGHT**	
	CNJ29 to CNJ12 CNJ30 to CNJ13 CNJ31 to CNJ 21	CNJ33 to CNJ14 CNJ34 to CNJ15 CNJ35 to CNJ23	CNJ49 to CNJ16 CNJ50 to CNJ17 CNJ51 to CNJ18

FREE ASSIGNMENT	**BINARY**		
2 and 4 CHANNEL Mixed Mono and Stereo	MXP-2916	MXP-2926	MXP-2936
	USUALLY ADVISABLE TO USE 4-CHANNEL,		

Table 7-5 (6 of 6). NIF Board Interconnections For Free Assignment, Binary Mode

MXBK-EI22 NIF	MXP-2916		MXP-2926		MXP-2936	
	CONN	LOCATION	CONN	LOCATION	CONN	LOCATION
CNJ1	NA	NA	CNJ5	TML	CNJ3	MBC#1
CNJ2	CNJ3	MBC	CNJ3	MBC	CNJ3	MBC#2
CNJ3	NA	NA	CNJ3	TML	CNJ2	MBC#1
CNJ4	NA	NA	CNJ4	TML	CNJ1	MBC#1
CNJ5	CNJ2	MBC	CNJ2	MBC	CNJ2	MBC#2
CNJ6	CNJ1	MBC	CNJ1	MBC	CNJ1	MBC#2
CNJ7	CNJ16	MBC	CNJ16	MBC	CNJ16	MBC#2
CNJ8	CNJ25	AMB	CNJ25	AMB	CNJ25	AMB#2

Table 7-6. NIF to Console Interconnections

OPERATING MODE: ALL OPERATING MODES

MODULE	JUMPER	CONDITION	PURPOSE
MONO INPUT MODULE MOM Board	JW23 JW24 "OR" JW23 JW24	IN OUT OUT IN	VCA unity gain for depth of fade VCA +12dB gain for depth of fade
	JW25 JW26	IN OUT	UP/DOWN LED indicator
	JW27 JW28,JW29	IN OUT	VCA control of depth of fade
	JW30 JW32	IN OUT	PREVIEW command
STEREO INPUT MODULE STM Board	JW21 JW22	OUT IN	UP/DOWN LED indicator
	JW23 JW24,JW25	IN OUT	Control input for depth of fade
	JW27 JW26 "OR" JW27 JW26	IN OUT OUT IN	VCA unity gain for depth of fade VCA +12dB gain for depth of fade
	JW104,JW107 JW105	IN OUT	PREVIEW left (JW104); PREVIEW right (JW107)
MONO or STEREO INPUT MODULE AEF Board	JW1,JW2 JW3,JW4 "OR" JW1,JW2 JW3,JW4	IN OUT OUT IN	VCA input left directs PREVIEW bus (JW1); VCA input right directs PREVIEW bus (JW2) Balanced VCA output left directs PREVIEW bus (JW3); balanced VCA out right directs PREVIEW bus (JW4)

Table 7-7 (1 of 4). Console Modules, Jumper Preparation For Editing

OPERATING MODE: FIXED RECORDER ASSIGNMENT, 2-CHANNEL

MODULE	JUMPER	CONDITION	PURPOSE
MONITOR MODULE	JW18	IN	Editor MUTE 1 enable
	JW19	IN	Editor MUTE 2 enable
	JW20	IN	Edit EXT MON 1 enable
MON Board	JW21	IN	Edit EXT MON 2 enable
	*JW22	IN	Editor BYPASS enable
	*JW24	OUT	Fixed recorder assign
MML Board	JW5 JW6	IN OUT	BYPASS indicator unlit Editor is bypassed
	"OR"		
	JW5 JW6	OUT IN	BYPASS indicator lit Editor is bypassed

OPERATING MODE: FIXED RECORDER ASSIGNMENT, 4-CHANNEL

MODULE	JUMPER	CONDITION	PURPOSE
MONITOR MODULE	JW5 JW6	IN OUT	BYPASS indicator unlit Editor is bypassed
	"OR"		
MML Board	JW5 JW6	OUT IN	BYPASS indicator lit Editor is bypassed
MON Board	JW18,JW19, JW20,JW21	OUT	Editor MUTEs and EXT MONs disabled
	*JW22	IN	Editor BYPASS enable
	*JW24	OUT	Fixed recorder assign

* For early versions of Monitor Modules with a main board that does not have JW22 or JW24 jumper blocks, see APPENDIX A

Table 7-7 (2 of 4). Console Modules, Jumper Preparation For Editing

OPERATING MODE: FIXED RECORDER ASSIGNMENT, 4-CHANNEL (Continued)

MODULE	JUMPER	CONDITION	PURPOSE
GROUP MODULES GRM Board	JW46 JW47,JW48	IN OUT	Assigns module as Group 1
	JW47 JW46,JW48	IN OUT	Assigns module as Group 2
	JW48 JW46,JW47	IN OUT	Assigns module as Group 3
	JW46,JW47 JW48	IN OUT	Assigns module as Group 4
	JW52 JW49,JW50,JW51	IN OUT	Editor MUTE 1 to Group 1
	JW51 JW49,JW50,JW52	IN OUT	Editor MUTE 2 to Group 2
	JW50 JW49,JW51,JW52	IN OUT	Editor MUTE 3 to Group 3
	JW49 JW50,JW50,JW52	IN OUT	Editor MUTE 4 to Group 4
	JW56 JW53,JW54,JW55	IN OUT	Editor EXT MON 1 to Group 1
	JW55 JW53,JW54,JW56	IN OUT	Editor EXT MON 2 to Group 2
	JW54 JW53,JW55,JW56	IN OUT	Editor EXT MON 3 to Group 3
	JW53 JW54,JW55,JW56	IN OUT	Editor EXT MON 4 to Group 4
	JW57 JW58	IN OUT	VCA unity gain for depth of fade
	JW64 JW59,JW65	IN OUT	MANDANTORY condition for use with EI22
	JW61 JW62,JW63	IN OUT	VCA control of depth of fade

Table 7-7 (3 of 4). Console Modules, Jumper Preparation For Editing

OPERATING MODE: FREE RECORDER ASSIGNMENT, 2-CHANNEL/4-CHANNEL

MODULE	JUMPER	CONDITION	PURPOSE
MONITOR MODULE	JW5	IN	BYPASS indicator unlit
	JW6	OUT	Editor is bypassed
	"OR"		
MML Board	JW5	OUT	BYPASS indicator lit
	JW6	IN	Editor is bypassed
MON Board	JW18,JW19, JW20,JW21	OUT	MUTEs and EXT MONs disabled
	*JW22	IN	Editor BYPASS enable
	*JW24	IN	Free recorder assign

* For early versions of Monitor Modules with a main board that does not have JW22 or JW24 jumper blocks, see APPENDIX A

Table 7-7 (4 of 4). Console Modules, Jumper Preparation For Editing

7.3. CONTROLS AND INDICATORS

There are no controls or indicators physically attached to **MXBK-EI22**. Control functions are passed from the editor, through the interface, to the console. Audio signal routing within the console is module controlled. **MXBK-EI22** supports all parallel VCA audio control features of the **BVE-900, BVE-910** and **BVE-9000** Editors.
Refer to the appropriate editor manual for external control information.

Information concerning the use of console module controls associated with the edit function are incorporated in the following paragraphs.

7.4. OPERATION

7.4.1 Editors

For operations with series **MXP-2900** consoles and the **MXBK-EI22** Interface, **BVE-900, BVE-910** and **BVE-9000** Editors require certain plug-in boards and controllers in addition to their basic configuration.

7.4.1.1 BVE-900, BVE-910 Editors (Figure 7-3)

The **BVE-900** Editor operates in Fixed Recorder Assignment mode and is equipped with a **BKE-916** Parallel Mixer Interface (PMI) board. **BKE-916** provides six separate or four paired VCA control lines and two EXT MON (preview) lines. A **BVE-900**, upgraded to include Editor Expansion Package **BKE-900K** or **BKE-900K2**, can be fitted for Fixed or Free Recorder Assignment modes of operation.

A **BVE-910** Editor or an upgraded **BVE-900** Editor can be equipped with a **BKE-916A** PMI for editing operations in Fixed Recorder Assignment mode. **BKE-916A** provides eight separate or four paired VCA control lines and four EXT MON (preview) lines. For Free Recorder Assignment operation, either editor must be equipped with a **BKE-908** Monitor Switcher Interface (MSI) board. **BKE-908** provides the 4-bit binary preview (solo) address codes for channels A1, A2, A3, A4.

7.4.1.2 BVE-9000 Editor (Figure 7-4)

The **BVE-9000** Editor requires a BKE-9002 Intelligent Device Controller Interface plug-in board and an externally connected **BKE-9600** Intelligent Device Controller (IDC). For operation in Fixed Recorder Assignment, the **BKE-9600** controller must be equipped with at least one **BKE-9632** Parallel Mixer Interface (PMI) plug-in board. One **BKE-9632** PMI provides two EXT MON (preview), two MUTE and twelve VCA control line outputs. One **BKE-9632** can handle 2-channel edit operations for **MXP-2916**. Fixed 4-channel or 2-channel edit operations that need more than twelve VCA control lines may require two or three **BKE-9632** plug-ins, with possibly another **BKE-9600** controller, depending on the console (**MXP-2926** or **MXP-2936**) and the console's configuration.

For Free Recorder Assignment, 2-channel or 4-channel, Parallel and Binary operation, **BKE-9600** must be equipped with plug-in board **BKE-9633** Monitor Switcher Interface (MSI). **BKE-9633** supplies ten SELECT lines each for channels A1, A2, A3, A4 and can be configured for binary or parallel connection to **MXP-2900** series consoles. This provides sufficient preview (solo) addressing lines for all the consoles.

7.4.2 Types Of Signals Issued By The Editors

When properly configured, the editors issue four types of signals to the console; VCA, EXT MON, MUTE control signals and preview (solo) address signals.

7.4.2.1 VCA Control Signals

All edit operating modes require the editor VCA control lines to be connected to the console. Depending on the number of VTR audio channels and the input module (mono and/or stereo) compliment of the console, the VCA control lines can be connected in parallel for simultaneous control of one, two, four or more input modules.

Each VCA control line carries a ramp voltage which changes logarithmically, within a time period defined by the editor. The voltage change limits are from 0V to 5V or 5V to 0V, where 0V represents zero attenuation and 5V causes complete suppression of the audio signal. Typically, these control lines can provide transitions or cuts between sources and dissolves to or from the muted condition (black).

7.4.2.2 EXT MON Control Signals

Editor EXT MON control outputs activate edit previews and must be connected to **MXBK-EI22** for all Fixed Recorder Assignment previewing operations.

Line Out signals from the recording VTR are connected to the Monitor Module for fixed, 2-channel preview operations or the Group Modules for fixed, 4-channel preview operations. When a preview is activated, the editor EXT MON control signals direct the recorder output to the control room monitors.

The editor to console connection differs for Fixed Recorder Assignment 2-channel and 4-channel operation modes.

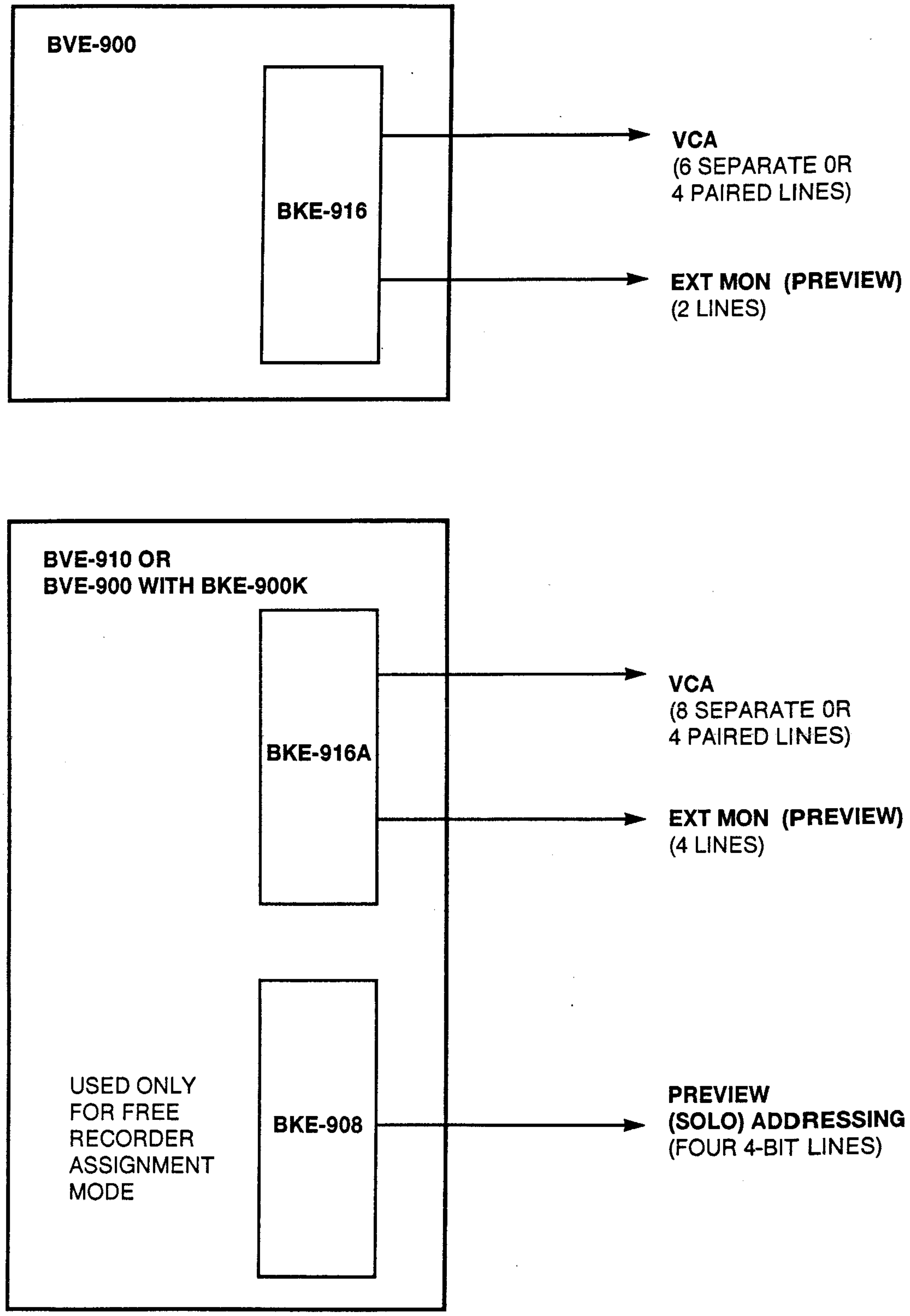

BVE-900
BKE-916
VCA
(6 SEPARATE OR
4 PAIRED LINES)
EXT MON (PREVIEW)
(2 LINES)
BVE-910 OR
BVE-900 WITH BKE-900K
BKE-916A
VCA
(8 SEPARATE OR
4 PAIRED LINES)
EXT MON (PREVIEW)
(4 LINES)
USED ONLY
FOR FREE
RECORDER
ASSIGNMENT
MODE
BKE-908
PREVIEW
(SOLO) ADDRESSING
(FOUR 4-BIT LINES)

Figure 7-3. BVE-900/BVE-910 Editors Configuration

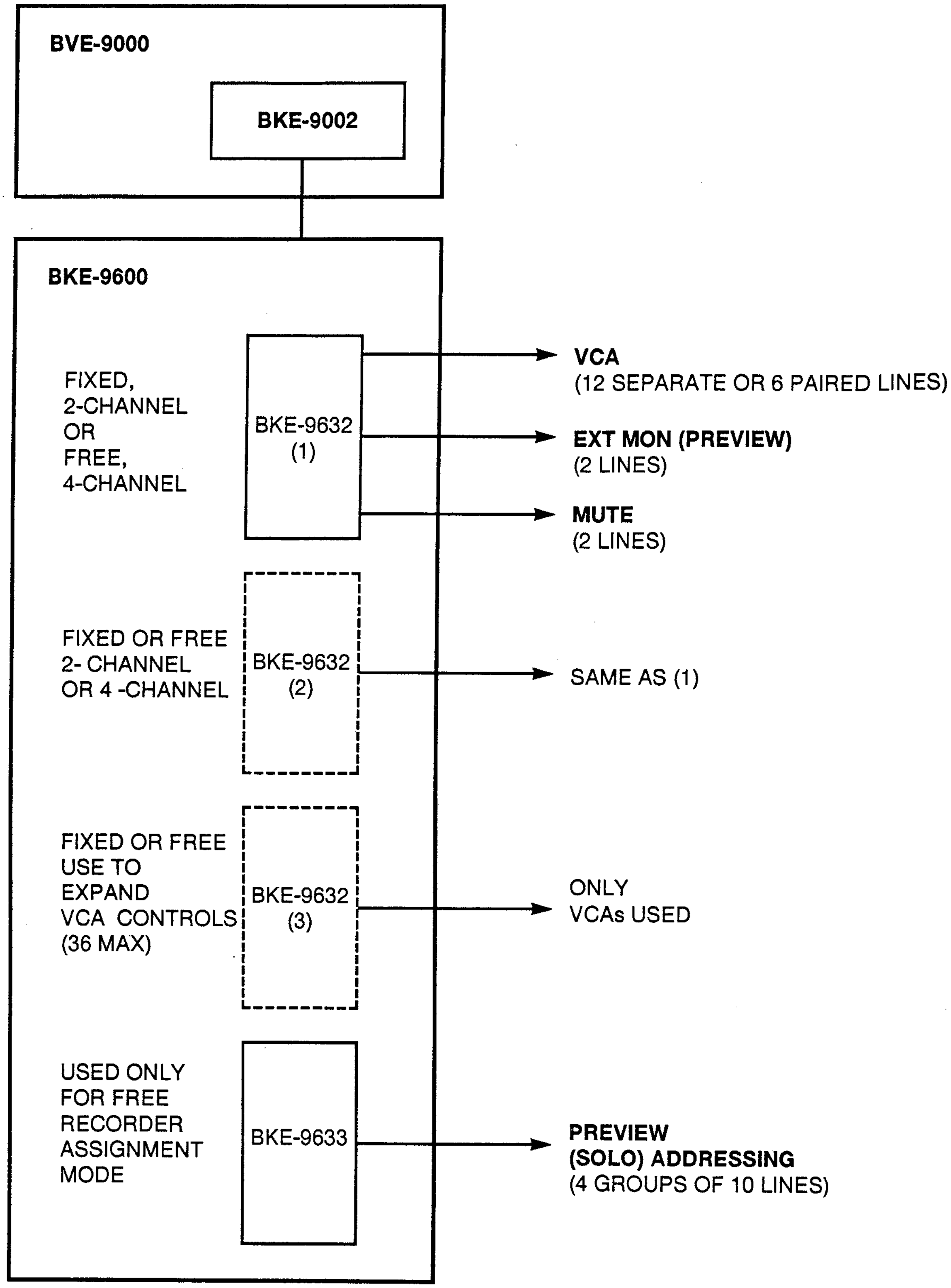

BVE-9000
BKE-9002
BKE-9600
FIXED, 2-CHANNEL OR FREE, 4-CHANNEL
BKE-9632 (1)
VCA
(12 SEPARATE OR 6 PAIRED LINES)
EXT MON (PREVIEW)
(2 LINES)
MUTE
(2 LINES)
FIXED OR FREE 2- CHANNEL OR 4 -CHANNEL
BKE-9632 (2)
SAME AS (1)
FIXED OR FREE USE TO EXPAND VCA CONTROLS (36 MAX)
BKE-9632 (3)
ONLY VCAs USED
USED ONLY FOR FREE RECORDER ASSIGNMENT MODE
BKE-9633
PREVIEW (SOLO) ADDRESSING
(4 GROUPS OF 10 LINES)

Figure 7-4. BVE-9000 Editor Configuration

7.4.2.2.1 Fixed, 2-Channel

With a **BVE-900** or a **BVE-910** Editor on line and with the editing function in Fixed Recorder Assignment, 2-channel mode, the editor's **BKE-916/916A** board provides two EXT MON lines (see Figure 7-3). Those lines connect to the Monitor Module through **MXBK-EI22.** This enables independent previews for the left and right channels under editor control of the Monitor Module. Recorder audio outputs are connected to the Monitor Module's EXT 1 L and EXT 1 R inputs.

Under the same conditions and for the same results, but with a **BVE-9000** Editor system on line, the two EXT MON lines are available from one **BKE-9632** board in the system's **BKE-9600** IDC (see Figure 7-4).

7.4.2.2.2 Fixed, 4-Channel

When either a **BVE-900** Editor upgraded with **BKE-900K** is on line or a **BVE-910** Editor is on line, and with the editing function in Fixed Recorder Assignment, 4-channel mode, the editor's **BKE-916A** board provides four EXT MON lines (see Figure 7-4). Those four lines connect to the Group Modules through **MXBK-EI22.** This enables independent previews for all four channels under editor control of the Group Modules. Recorder audio outputs are connected to the Group Modules' RETURN HI and RETURN LO inputs.

Under the same conditions and for the same results, but with a **BVE-9000** Editor system on line, two EXT MON lines are available from one **BKE-9632** board in the system's **BKE-9600** IDC and four EXT MON lines are available if two **BKE-9632** boards are used (see Figure 7-4).

7.4.2.3 Mute

The MUTE signal lines from the **BVE-9000** system enables suppression of signals not required to be heard during editing operations. The mute function is also available from **BVE-900** or **BVE-910** Editors.

7.4.2.4 Preview (Solo) Addressing

Plug-in **BKE-908** in the upgraded **BVE-900** or **BVE-910** Editors provides four 4-bit address lines that are required only for Free Recorder Assignment, binary operating modes.

Plug-in BKE-9633 for the **BVE-9000** Editor is capable of supplying up to forty SELECT lines for addressing. Parallel or binary addressing in Free Recorder Assignment mode is possible.

7.4.2.4.1 Preview (Solo) Commands, Free Assignment, Binary

When either a **BVE-900** Editor upgraded with **BKE-900K** is on line or a **BVE-910** Editor is on line, and with the editing function in Free Recorder Assignment, the editor's **BKE-908** board provides four groups of four control lines (A1-A through D, A2-A through D, etc., see Figure 7-3). These comprise the 4-bit binary coded address lines that are input to the **MXBK-EI22** interface.

When a **BVE-9000** Editor is on line and set for Free Recorder Assignment, Binary operation, plug-in **BKE-9633** provides the binary coded addressing. **BKE-9633** can issue four groups of ten control lines (A1 SELECT 1 through 10, A2 SELECT 1 through 10, etc., see Figure 7-4). For binary operation, lines 1 through 5 of each group comprise the 5-bit binary coded address lines that are input to the interface.

MXBK-EI22 decodes the 5-bit addresses as individual preview (solo) command lines. There are 30 left channel and 30 right channel solo command lines available at the interface.

7.4.2.4.2 Preview (Solo) Commands, Free Assignment, Parallel

When a **BVE-9000** Editor is set for Free Assignment, Parallel operation, plug-in **BKE-9633** provides forty individual Preview (solo) command lines. This limits the number of input modules that can be accommodated.

7.4.3 Console Operations During Editing

Certain changes to console module jumper configurations are required for editing purposes. Applicable jumper configurations are given in Table 7-7. Explanations for these changes and other pertinent information follows.

7.4.3.1 Monitor Module

7.4.3.1.1 BYPASS and AUTO MUTE Switch/Indicators

When BYPASS is selected, all control signal paths in the NIF board are disabled, and the console reverts to manual control. JW22 must be in place to support the bypass function. The AUTOMUTE switch is completely inactive with **MXBK-EI22.**

7.4.3.1.2 Fixed Recorder Assignment, 2-Channel Operation

The Monitor Module controls preview and mute switching for Fixed Recorder Assignment, 2-Channel operations.

Table 7-7 directs the removal of jumper JW24 and installation of jumpers JW18 through JW21. Table 7-7 also directs the removal of Group Module jumpers JW49 through JW56. This procedure must be done as specified or improper preview and mute switching will be the result.

LINE OUT from the recording VTR is connected to Monitor Module Input/ Output connector pins 15 (EXT 1 R HI), 44 (EXT 1 R LO), 16 (EXT 1 L HI), 45 (EXT 1 L LO). The Monitor Module CONTROL ROOM switch bank push switch MIX A is selected. The monitor listening level is adjusted by the MONITOR LVL control.

7.4.3.1.3 Free Recorder Assignment

For all free assignment modes of operation, jumper JW24 must be in place. This allows simultaneous monitoring of LINEOUT and Preview lines.

7.4.3.2 Group Modules

7.4.3.2.1 Fixed Recorder Assignment, 4-Channel Operation

The four Group Modules control preview and mute switching for Fixed Recorder Assignment, 4-channel operations. The jumper installation procedures of Table 7-7 must be done as specified or improper preview and mute switching will be the result.

LINE OUT signals from the four channels of the recording VTR are connected to the RETURN lines of the four Group Modules. When a preview is activated, the LINE OUT signals are routed by the GROUP MIX channels to the 2-Mix. The signals are heard through the control room speakers via the Monitor Module CONTROL ROOM MIX A push switch. The faders of each Group Module must be set for zero attenuation. GROUP 1 and GROUP 3 PAN controls can be set full left and GROUP 2 and GROUP 4 PAN controls can be set full right. However, the actual PAN settings are determined by individual circumstances. The Master Module fader, set for zero attenuation, will enable audio monitoring and preview level monitoring on the main STEREO LEFT and RIGHT meters.

The output from the player devices are sent to the console Input Modules, routed to the Group busses and output to the recorder device on the Group Modules' OUTPUT lines. The Group Modules' LEVEL controls should normally be set fully clockwise, unless overall signal level to the recorder is to be adjusted. The Group signal levels are monitored on the Group meters located on the Meter Bridge.

7.4.3.2.2 Free Recorder Assignment

For all free assignment modes of operation, Table 7-7 shows that jumper JW24 on the Monitor Module must be installed. Since the Group Modules must be part of the signal path, even in 2-channel operation, the information given in the preceding paragraph also applies to the free assignment operation modes.

In free assignment, 2-channel mode, Group 1 and Group 2 must be used with their outputs connected to the record inputs of all record devices. For free assignment, 4-channel operation, the four Groups are connected to the record inputs of all the record devices. Record signal levels are monitored by the Group meters.

7.4.3.3 Input Modules

7.4.3.3.1 Local And Voice Over Controls

Input Modules, mono or stereo, have a LOCAL switch, a VO (voice over) control and a pair of arrow indicators. When selected (depressed), LOCAL sets the module to manual operation. For an Input Module to be included in the edit function, the LOCAL switch must be deselected (up).

With the VO control, the depth of editor fade can be adjusted to a pre-determined limit. This is particularly useful when editing an announcement over a music bed. For proper setting, the player devices should be run while the desired depth of fade is determined by adjusting the module's fader. When the fader setting is satisfactory, observe the two arrow indicators and adjust the VO control. The indicators track over and under adjustment. At the point where neither indicator lights, the VO control setting matches the fader setting. The fader can then be returned to its normal setting, and the edit can be executed. For normal editing operations, VO should be set in full clockwise position.

7.4.3.3.2 Channel PAN Controls

An editor controlled mono Input Module, processing mono signals, must have its Channel PAN control set fully counterclockwise.

When stereo signals are processed by a mono Input Module, left stereo elements should be connected to odd-numbered mono modules and right stereo elements connected to even-numbered modules. With this input arrangement, the Channel PAN controls on the odd-numbered modules usually will be set somewhere between center and fully counterclockwise. Similarly, PAN controls on the even-numbered modules usually will be set between center and fully clockwise.

7.5. APPLICATIONS

7.5.1 Console Preparation

The interface and some modules must be prepared prior to editing.

7.5.1.1 Interface Installation

For consoles not already equipped with **MXBK-EI22,** installation instructions are given in paragraph 7.2.

7.5.1.2 Interface Preparation

The jumper and patch cable configurations of the NIF board must satisfy operational mode requirements. The basic configurations are described in Tables 7-2 through 7-5. A departure from the basic condition for a specific application is explained in the application information.

7.5.1.3 Module Preparation

The console Monitor and Group Modules must be jumper configured as required for the chosen operational mode. Those modules shall conform with the jumper settings listed in Table 7-7.

7.5.2 Editor Requirements

For operations with series **MXP-2900** consoles and the **MXBK-EI22** Interface, **BVE-900**, **BVE-910** and **BVE-9000** Editors require certain plug-in boards and controllers in addition to their basic configuration. Refer to paragraph 7.4.1 for details.

Attention must also be given to the plug-in boards' switch and jumper settings. They must be tailored to edit system requirements. It is then necessary to program the editor. Appendix B contains pertinent program notes, jumper installation and switch setting instructions.

7.5.3 Editor To Console Cables

Appendix C contains helpful information concerning editor to console interconnect cables. An important feature of Appendix C are the wire lists that provide interconnect cable wiring details for various edit system applications. Detailed charts showing connector orientation and connector signal assignments for the **BVE-900, BVE-910** and **BVE-9000** Editors and the editor entry ports of **MXP-2900** series consoles are also located in Appendix C.

Three Ansley 50 pin connectors (female), matching the console editor entry port connectors (male), are supplied with the interface for use when fabricating an editor to console interconnect cable. Other 50 pin D-type connectors do not have a corresponding pin numbering arrangement. However, if other than Ansley connectors will be used, such as AMP, JAE, ITT-Cannon D-types, pin to pin translations are shown in the Binary Mode or Parallel Mode Console Editor Entry Ports Signal Assignments List in Appendix C.

IMPORTANT

The edit system is enabled when the CON SENS line is grounded. Therefor, jumping pins 1 and 2 (1, 34 non-Ansley) of the EDITOR 1 mating connector is mandatory.

7.5.4 System Setups

In general, there are two main categories of system setups, audio connection setups and editor connection setups. There are many variations, some of which are discussed in the following paragraphs. Wiring diagrams for typical setups are given in Appendix D.

7.5.4.1 Audio Setups

Audio input connections to the console vary with console module types and processed signals (mono, 2-channel or 4-channel).

7.5.4.1.1 Mono Modules, Mono Inputs

One mono Input Module accommodates one audio channel for processing. For instance, an **MXP-2936** equipped with four Group Modules, two Dynamics Modules, one each Master, Monitor and Communications Module, can be equipped with 31 Input Modules. In this case, the edit system can process 30 monophonic audio channels. Audio input to an Input Module is connected to the module's Input/Output Connector at the rear of the console. The connector pins are: 13 (INPUT B HI); 42 (INPUT B LO) and 12, 41 (INPUT B SHIELD). At the module's control panel, the input LINE push switch must be selected. Also, at the control panel, the signal can be directed to the Master Module or the Group Modules for output. Connections to INPUT A HI and LO can be made if connected through a line pre-amplifier or if the module's A input is equipped with an **MXBK-LI23** or **MXBK-LI24** Line Amplifier card.

When output from the Master Module is used during fixed recorder, 2-channel operation, the Input Module assignment section PAN control is set to L and the MIX push switch is selected. This directs the audio to the console's left bus and then output to the VTR assigned as the recorder. The recorder takes this signal from the Master Module Input/Output Connector pins 12 (MIX A L HI) and 41 (MIX A L LO).

If a Group output is used during a 2 or 4-channel free recorder operation or during a 4-channel fixed recorder operation, PAN is set to L and either push switch 1-2 or 3-4 is selected. Output is then taken from the appropriate Group Module's Input/Output Connector pins 16 (GROUP OUT HI) and 45 (GROUP OUT LO).

7.5.4.1.2 Mono Modules, Stereo Inputs

If stereo is to be processed by mono Input Modules, one module (channel) is required for each stereo signal element. Therefore, the console described in paragraph 7.5.4.1.1 could accept as many as 15 input pairs. The input connections will be made as described in that paragraph. All modules will have their input push switch, LINE, selected.

In a typical arrangement, fifteen stereo pairs enter the console with left elements connected to odd numbered channels and right elements connected to even numbered channels. PAN controls on the odd numbered modules (channels) shall be set to L. PAN controls on the even numbered channels shall be set to R. All Input/Output Modules are assigned to MIX.

When editing in Fixed Recorder Assignment, 2-channel mode, assignment section MIX switch is selected. This directs the audio from an odd numbered channel to the console's mix left bus and audio from an even numbered channel to the console's mix right bus. The VTR, assigned as the recorder, takes these signals from the Master Module Input/Output Connector pins 12 (MIX A L HI), 41 (MIX A L LO), 11 MIX A R HI), 40 (MIX A R LO).

When editing in Free Recorder Assignment mode, assignment section push switch 1-2 is selected. This directs the audio to the Group Modules and then output to all VTRs from Group Module Input/Output Connector pins 16 (GROUP OUT HI) and 45 (GROUP OUT LO).

7.5.4.1.3 Mono Modules, 4-Channel Inputs

If a console, as decribed in paragraph 7.5.4.1.1, is used for 4-channel operation, up to seven 4-channel inputs can be accommodated. Connections will be made as described in that paragraph. In a typical arrangement, the 4-channel input signals will include a stereo pair from two music tracks, while the other two tracks carry mono dialogue, sound effects, etc. For the stereo pair, PAN controls will be set L and R according to odd and even numbered module positions. The PAN control setting for the dialogue/effects channels will be determined by the desired position in the mix (usually centered).

Since the 4-channel signals out of the console are taken from the Input/Ouput Connectors of the Group Modules the signals must be directed to the Group bus by the push switches 1-2 and 3-4 on the Input Modules.

7.5.4.1.4 Stereo Modules, Mono Inputs

Where Stereo Input Modules are used to process mono signals, only the left channel in each module is used. Assuming a full configured **MXP-2936** console, up to thirty inputs can be accommodated.

Since all Stereo Input Modules are line input types, the mono signals to the Input/Output connector can be connected to any one of the three available input channels, as follows:

SIGNAL	HIGH	LOW
Input 1 Left	Pin 15	Pin 45
Input 2 Left	Pin 10	Pin 39
Input 3 Left	Pin 8	Pin 37

The appropriate input selection push switch, IP1, IP2 or IP3, must be selected and the BAL control on each module can be set as required. VTRs take this signal from the Master Module Input/Output Connector pins 10 (MIX B L HI) and 39 (MIX B L LO) when in fixed, 2-channel mode.

7.5.4.1.5 Stereo Modules, Stereo Inputs

The previously described console, fitted with all Stereo Input Modules, can accommodate up to 30 stereo inputs. The inputs are connected via the Input/Output connector of each module to any one of the three available inputs, as shown below:

SIGNAL	HIGH	LOW
Input 1 Left	Pin 15	Pin 45
Input 1 Right	Pin 13	Pin 42
Input 2 Left	Pin 10	Pin 39
Input 2 Right	Pin 9	Pin 38
Input 3 Left	Pin 8	Pin 37
Input 3 Right	Pin 7	Pin 22

The appropriate input selection push switch, IP1, IP2 or IP3, must be selected and the BAL control on each module can be set at or anywhere between L and R, as required.

When editing in Fixed Assignment, 2-channel mode, the main stereo MIX switch is selected. This directs the 2-Mix to the Master Module. VTRs take these signals from the Master Module Input/Output Connector pins 12 (MIX A L HI), 41 (MIX A L LO), 11 MIX A R HI), 40 (MIX A R LO).

When editing in Free Recorder Assignment mode, the group select push switch 1-2 is selected. This directs the audio to the Group Module and output to all VTRs from Group Module Input/Output Connector pins 45 (GROUP OUT LO) and 16 (GROUP OUT HI).

7.5.4.1.6 Stereo Modules, 4-Channel Inputs

The format of a 4-channel signal applied to stereo modules could include two stereo pairs. One pair might carry music and the other pair stereo dialogue, sound effects, etc. Two stereo modules can accommodate the four channels. Up to fifteen separate 4-channel inputs could be handled by a full featured **MXP-2936** console.

Stereo pairs in 4-channel format can be connected as described in paragraph 7.5.3.1.5. Assignments to the Group buses are as required. For example, the dialogue/effects pair from each 4-channel input could be assigned to Group 1-2 while the music pair from each input could be assigned to Groups 3-4 (push switches 1-2 and 3-4 on Stereo Input Modules).

VTRs take these signals from the Group Module Input/Output Connector pins 45 (GROUP OUT LO) and 16 (GROUP OUT HI).

7.5.4.1.7 Mixed Modules

When a console is equipped with Stereo Input Modules and mono Input Modules, there are many possible console setups. For instance, a 4-channel signal comprised of two mono channels and a stereo pair would use only three modules: two mono Input Modules; one Stereo Input Module. A variety of other mixed module combination setups can be determined from information given in the preceding paragraphs.

When mixed input module types are used, multi-branching patch ribbon cables are required for interface. Sony part numbers for these cables are given in Table 7-1.

7.5.5 Audio Preview Setups

The audio setups for previewing are different for Free Recorder Assignment and Fixed Recorder Assignments modes.

7.5.5.1 Free Recorder Assignment Mode Previews

In free assignment mode, previewing uses the mixer's solo bus. In free assignment mode:

a. The editor assigns a VTR as the recorder and the others as players.

b. Audio from the players is fed via the console's input modules to the audio groups and then, via Group Modules, to themix bus for monitoring purposes.

c. The console's group outputs are commonly connected to the inputs of all the VTRs but only the assigned recorder records the signals.

d. The fader is set to full down or the channel is muted on the modules whose inputs are connected to the recording VTR's output.

With this setup, the players can feed the recorder in accordance with the recorder assignment. When the editor calls for a preview, the recording VTR's output becomes audible through the control room monitor.

7.5.5.1.1 Mono Previews

For mono previews in free assignment mode, only left associated console functions are used (2-Mix left, Solo left, Input left, etc.). Each VTR output connects to an input module as described in paragraph 7.5.4.1.1 for mono modules or 7.5.4.1.4 for stereo modules. All VTR inputs are connected to Group Modules' Input/Output Connector pins 16 (GROUP OUT HI) and 45 (GROUP OUT LO). The connections may be made through a distribution amplifier when many recorder VTRs are used.

7.5.5.1.2 2-Channel (Stereo) Previews

Stereo previews in free assignment mode setup requires that each VTR output connects to an input module as described in paragraph 7.5.4.1.2 for mono modules or 7.5.4.1.5 for stereo modules. All VTR inputs connect to Group 1 and Group 2 Group Modules Input/Output Connectors, pins 16 and 45. Distribution amplifiers are recommended.

7.5.5.1.3 4-Channel Previews

Refer to the setups described in paragraphs 7.5.4.1.1, 7.5.4.1.3 for mono and 7.5.4.1.5, 5.4.1.6 for stereo. The player outputs should be connected to the console input channels as decribed. All VTR inputs connect in parallel to the four Group Model Input/Output connectors pins 16 and 45. Distribution amplifiers are recommended.

7.5.5.2 Fixed Recorder Assignment Mode Previews

In fixed assignment mode, the preview outputs from the recording VTR may be connected to either the Monitor Module or the Group Module(s), depending on whether the signals being processed are 2-channel or 4-channel.

To route the signals to the control room monitors, set up the Monitor Module as follows:

a. CONTROL ROOM switch bank–
select MIX A
set SOLO potentiometer fully clockwise (maximum).

b. Enable MON push switch/indicator (lit)

c. Disable BYPASS push switch/indicator (unlit).

7.5.5.2.1 Mono Previews

For fixed assignment mode mono previewing, the recording VTR's Line Out signal is connected to the console Monitor Module Input/Output connector pins 16 (EXT 1 L HI) and 45 (EXT 1 L LO). Enable the control room monitors see 5.5.1.

7.5.5.2.2 Stereo Previews

Fixed stereo preview audio routing is similar to that described for mono previews, except two signal elements are involved. The recording VTR's Line Out signals are connected to the Monitor Module's EXT 1 left and right lines at Input/Output connector pins 15, 44, 16, 45. Enable the control room monitor, see 5.5.1.

7.5.5.2.3 4-Channel Previews, Fixed Mode

For 4-channel previews in fixed mode, the Line Out signals from the four channels on the recording VTR must be connected to the Group Module's RETURN HI, LO inputs at Group Modules Input/Output connectors pins 12, 41. When a preview is activated, the recorder outputs are steered throuth the Group Module's Group – to – mix signal path (Group Modules topmost MIX push switch unselected) to the mix bus, and, in turn, steered to the control room monitor when the Monitor Module's CONTROL ROOM switch bank MIX A push switch is selected.

For previewing, the record VTR's Line In signals are connected from the Group Module GROUP OUT HI, LO lines at the Group Modules' Input/Output connectors pins 16, 45. To direct the preview signal to the control room monitors, see 5.5.1.

7.5.6 VCA Control Lines from Editor

The number of VCA control lines available from an editor is dependent on plug-in board switch settings (see Appendix B).

BVE-900 plug-in **BKE-916** will output six individual VCA lines or four paired lines. **BVE-910** plug-in BKE-916A can be set to output eight individual VCA lines or four paired lines. When in the paired mode, one VCA output will control the VCA of two Input Modules. The individual VCA lines setup is preferred.

BVE-9000 plug-in **BKE-9632**, will supply twelve individual VCA lines. Up to three **BKE-9632** boards can be used for a total of 36 VCAs.

One VCA control line assigned to one multi-channel VTR will control each of the console input modules associated with that one multi-channel VTR. Separate VCA lines MUST NOT be connected to the individual input modules handling each channel of a VTR. That is, one editor VCA output can be patched to control two or four Input Modules. Multi-branching patch cables, included in parts received (Table 7-1), provide the capability for VCA control line multi-channel patching on the NIF board.

This method of connection can be used in the following operations: Fixed Recorder Assignment, 2-Channel with Stereo Input Modules; Free Recorder Assignment with mono modules processing mono signals; Free Recorder Assignment with stereo modules processing stereo signals.

7.5.6.1 Mono Signals

Where mono signals are processed in mono modules, the editor plug-ins are set for individual VCA outputs and NIF board signal patching can be as described in Table 7-3, 7-4, or 7-5 as applicable.

7.5.6.2 Stereo Signals

Setting editor VCA lines to paired outputs allows stereo signals to be processed by Mono or Stereo Input Modules. NIF board signal patching shall be as described in Table 7-3, 7-4, or 7-5 as applicable.

7.5.7 Using SYS-GP Lines For Group VCA Control

With **BVE-9000** Editor VCA control lines assigned to the four SYS-GP lines at console entry port EDITOR 3, the editor will assume control of Group Module audio output signal levels or provide dc voltage to Group Module multi-channel VCA groupings.

7.5.7.1 VCA Control Of Group Module Audio Output

Assign editor VCA control lines to the EDITOR 3 SYS-GP lines. On the Group Modules, remove jumper JW59, install jumpers JW57 and JW61, and make certain that both the LOCAL and VCA switches are in the unlatched (up) position.

7.5.7.2 Multiple Channel VCA Groups

A DC voltage controls two or more Mono or Stereo Module faders by connecting editor VCA control lines to the EDITOR SYS-GP lines. The editor VCA control lines can be configured as AUX1 and AUX2 on the Editor set-up screen. The VCA GP thumbwheel switch of each controlled module must be set to the appropriate group. JW59 must be removed, the VCA switch must be latched (down position), and the LOCAL switch must be unlatched (up position) on the Group Modules.

SECTION A

BLOCK DIAGRAMS

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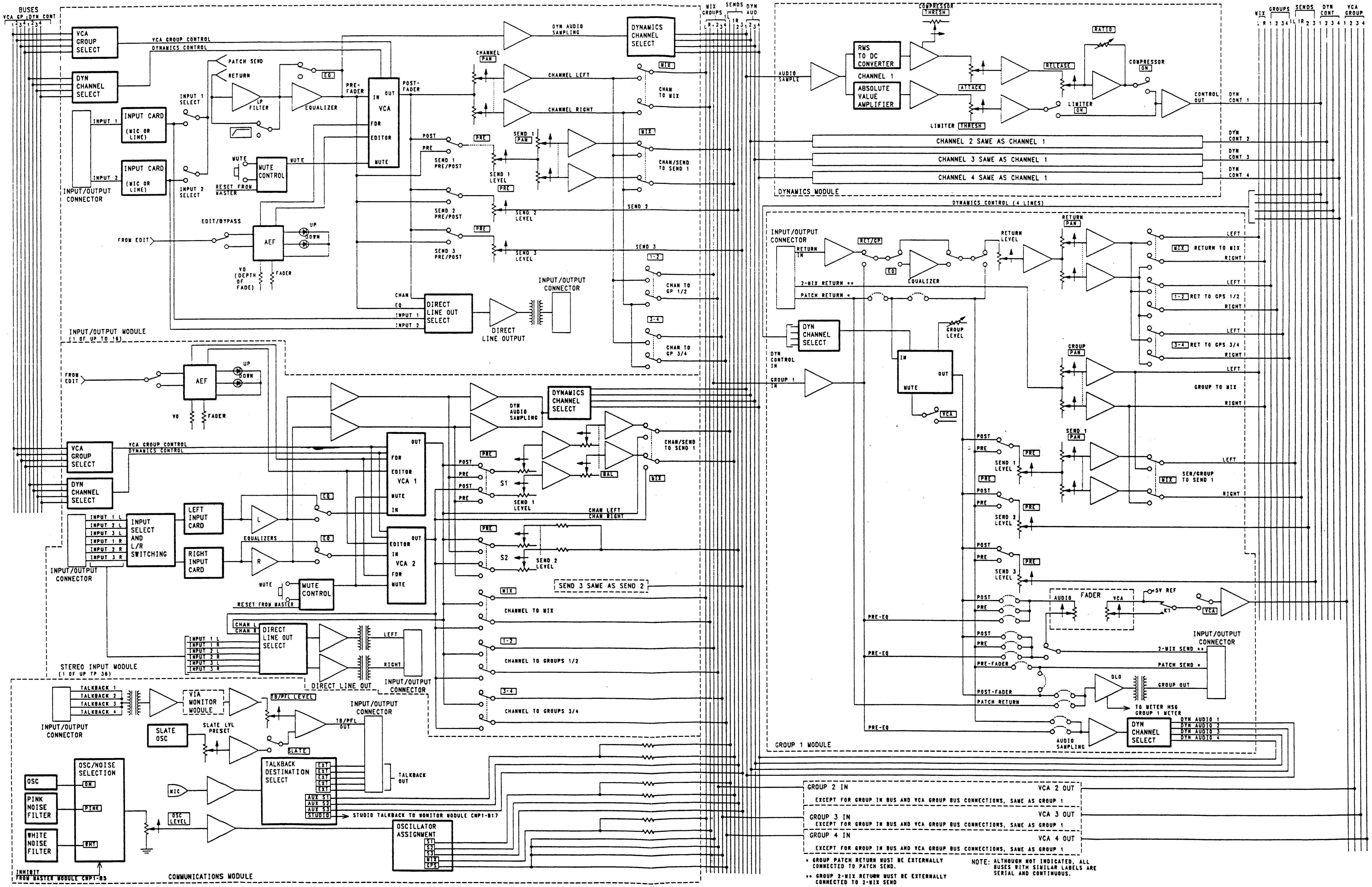
MXP-2900 SERIES
SIGNAL FLOW DIAGRAM
(Sheet 1 of 2)



BUSES
VCA GP
DYN CONT
VCA GROUP SELECT
VCA GROUP CONTROL
DYNAMICS CONTROL
DYN CHANNEL SELECT
INPUT 1
INPUT CARD (MIC OR LINE)
INPUT 2
INPUT/OUTPUT CONNECTOR
INPUT 1 SELECT
INPUT 2 SELECT
PATCH SEND
RETURN
LP FILTER
EQUALIZER
EQ
PRE-FADER
IN
OUT
VCA
FDR
EDITOR
MUTE
POST-FADER
MUTE CONTROL
RESET FROM MASTER
EDIT/BYPASS
FROM EDIT
AEF
UP
DOWN
VO (DEPTH OF FADE)
FADER
DYN AUDIO SAMPLING
DYNAMICS CHANNEL SELECT
CHANNEL PAN
CHANNEL LEFT
CHANNEL RIGHT
MIX
CHAN TO MIX
POST
PRE
PRE
SEND 1 PAN
SEND 1 PRE/POST
SEND 1 LEVEL
CHAN/SEND TO SEND 1
SEND 2 PRE/POST
SEND 2 LEVEL
SEND 2
SEND 3 PRE/POST
SEND 3 LEVEL
SEND 3
1-2
CHAN TO GP 1/2
3-4
CHAN TO GP 3/4
CHAN
EQ
DIRECT LINE OUT SELECT
DIRECT LINE OUTPUT
INPUT/OUTPUT MODULE (1 OF UP TO 16)
MIX GROUPS
SENDS
DYN AUD
COMPRESSOR THRESH
RATIO
RMS TO DC CONVERTER
CHANNEL 1
ABSOLUTE VALUE AMPLIFIER
AUDIO SAMPLE
RELEASE
ATTACK
COMPRESSOR ON
LIMITER ON
LIMITER THRESH
CONTROL OUT
DYN CONT 1
CHANNEL 2 SAME AS CHANNEL 1
DYN CONT 2
CHANNEL 3 SAME AS CHANNEL 1
DYN CONT 3
CHANNEL 4 SAME AS CHANNEL 1
DYN CONT 4
DYNAMICS MODULE
DYNAMICS CONTROL (4 LINES)
VCA GROUP
INPUT/OUTPUT CONNECTOR
RETURN IN
RET/GP
EQ
EQUALIZER
RETURN LEVEL
RETURN PAN
LEFT
RIGHT
MIX RETURN TO MIX
2-MIX RETURN **
PATCH RETURN *
1-2 RET TO GPS 1/2
3-4 RET TO GPS 3/4
DYN CHANNEL SELECT
DYN CONTROL IN
GROUP LEVEL
GROUP 1 IN
IN
OUT
MUTE
VCA
GROUP PAN
GROUP TO MIX
SEND 1 PAN
SEN/GROUP TO SEND 1
SEND 1 LEVEL
SEND 2 LEVEL
SEND 3 LEVEL
PRE-EQ
FADER
AUDIO
5V REF
INPUT/OUTPUT CONNECTOR
2-MIX SEND **
PATCH SEND *
PRE-FADER
POST-FADER
PATCH RETURN
DLO
GROUP OUT
TO METER MSG GROUP 1 METER
AUDIO SAMPLING
DYN CHANNEL SELECT
DYN AUDIO 1
DYN AUDIO 2
DYN AUDIO 3
DYN AUDIO 4
GROUP 1 MODULE
FROM EDIT
AEF
UP
DOWN
VO
FADER
DYN AUDIO SAMPLING
DYNAMICS CHANNEL SELECT
VCA GROUP SELECT
VCA GROUP CONTROL
DYNAMICS CONTROL
DYN CHANNEL SELECT
OUT
FDR
EDITOR
VCA 1
MUTE
IN
POST
PRE
S1
SEND 1 LEVEL
BAL
CHAN/SEND TO SEND 1
MIX
CHAN LEFT
CHAN RIGHT
INPUT 1 L
INPUT 2 L
INPUT 3 L
INPUT 1 R
INPUT 2 R
INPUT 3 R
INPUT SELECT AND L/R SWITCHING
LEFT INPUT CARD
RIGHT INPUT CARD
L
R
EQUALIZERS
EQ
EDITOR
VCA 2
S2
SEND 2 LEVEL
SEND 3 SAME AS SEND 2
MUTE CONTROL
RESET FROM MASTER
CHANNEL TO MIX
1-2
CHANNEL TO GROUPS 1/2
3-4
CHANNEL TO GROUPS 3/4
CHAN L
CHAN R
DIRECT LINE OUT SELECT
LEFT
RIGHT
DIRECT LINE OUT
INPUT/OUTPUT CONNECTOR
STEREO INPUT MODULE (1 OF UP TO 36)
TALKBACK 1
TALKBACK 2
TALKBACK 3
TALKBACK 4
VIA MONITOR MODULE
TB/PFL LEVEL
TB/PFL OUT
INPUT/OUTPUT CONNECTOR
SLATE OSC
SLATE LVL PRESET
SLATE
TALKBACK DESTINATION SELECT
EXT
AUX S1
AUX S2
AUX S3
STUDIO
TALKBACK OUT
MIC
OSC LEVEL
STUDIO TALKBACK TO MONITOR MODULE CMP1-B17
OSCILLATOR ASSIGNMENT
S1
S2
S3
MIX
GPS
OSC
PINK NOISE FILTER
WHITE NOISE FILTER
OSC/NOISE SELECTION
ON
PINK
WHT
INHIBIT FROM MASTER MODULE CMP1-B5
COMMUNICATIONS MODULE

GROUP 2 IN — VCA 2 OUT
EXCEPT FOR GROUP IN BUS AND VCA GROUP BUS CONNECTIONS, SAME AS GROUP 1

GROUP 3 IN — VCA 3 OUT
EXCEPT FOR GROUP IN BUS AND VCA GROUP BUS CONNECTIONS, SAME AS GROUP 1

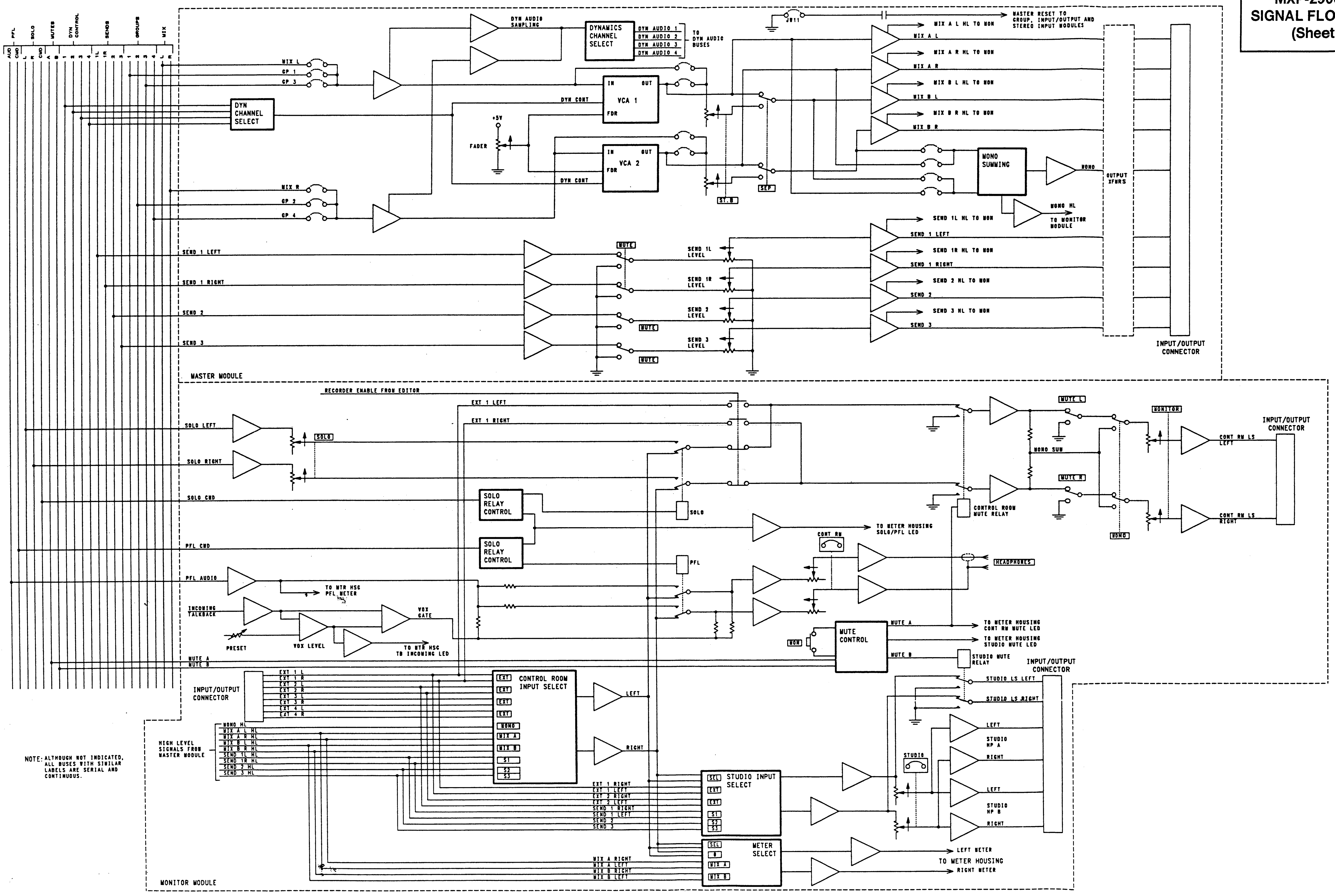
GROUP 4 IN — VCA 4 OUT
EXCEPT FOR GROUP IN BUS AND VCA GROUP BUS CONNECTIONS, SAME AS GROUP 1

* GROUP PATCH RETURN MUST BE EXTERNALLY CONNECTED TO PATCH SEND.

** GROUP 2-MIX RETURN MUST BE EXTERNALLY CONNECTED TO 2-MIX SEND

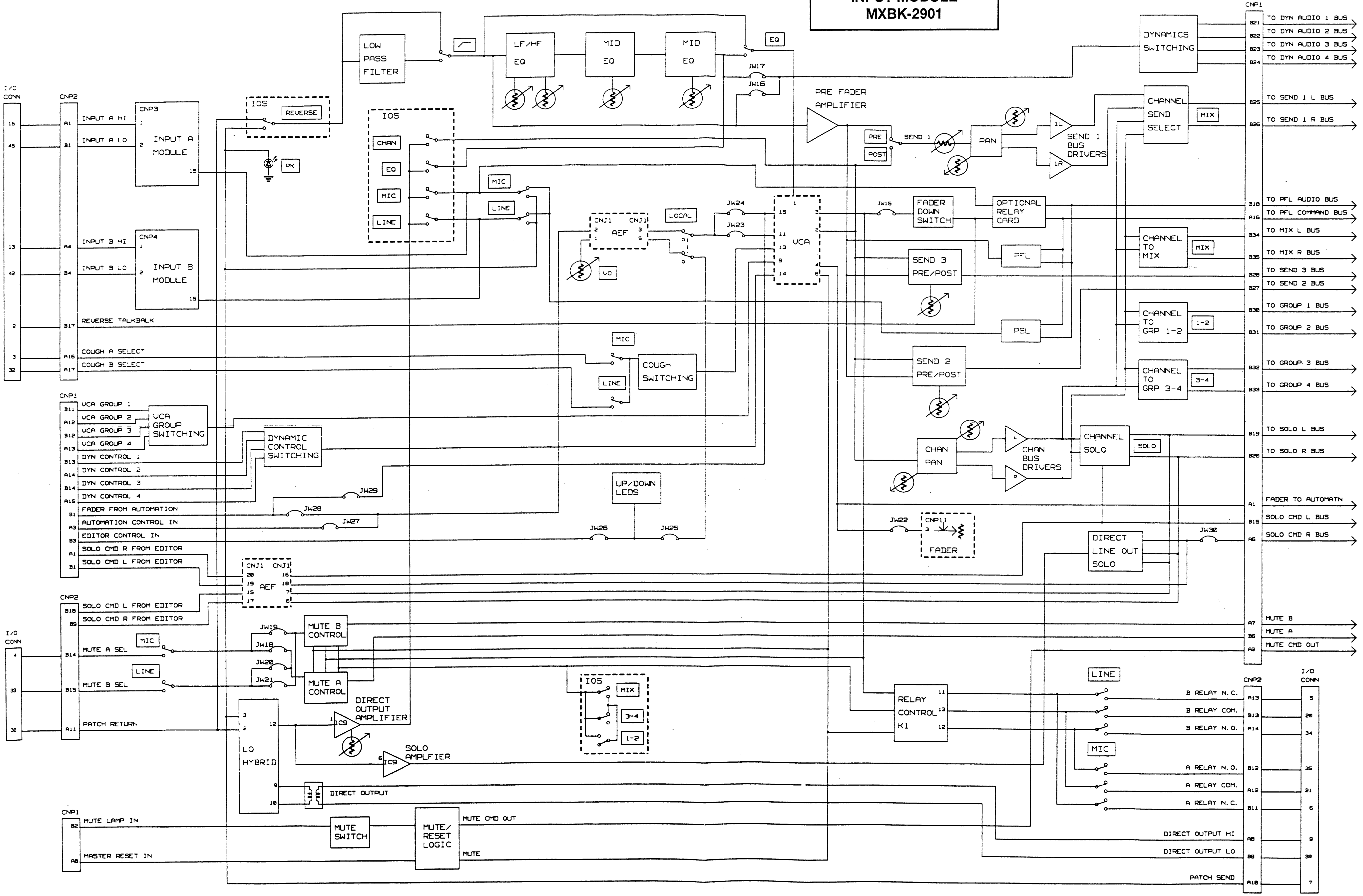
NOTE: ALTHOUGH NOT INDICATED, ALL BUSES WITH SIMILAR LABELS ARE SERIAL AND CONTINUOUS.

MXP-2900 SERIES
SIGNAL FLOW DIAGRAM
(Sheet 2 of 2)

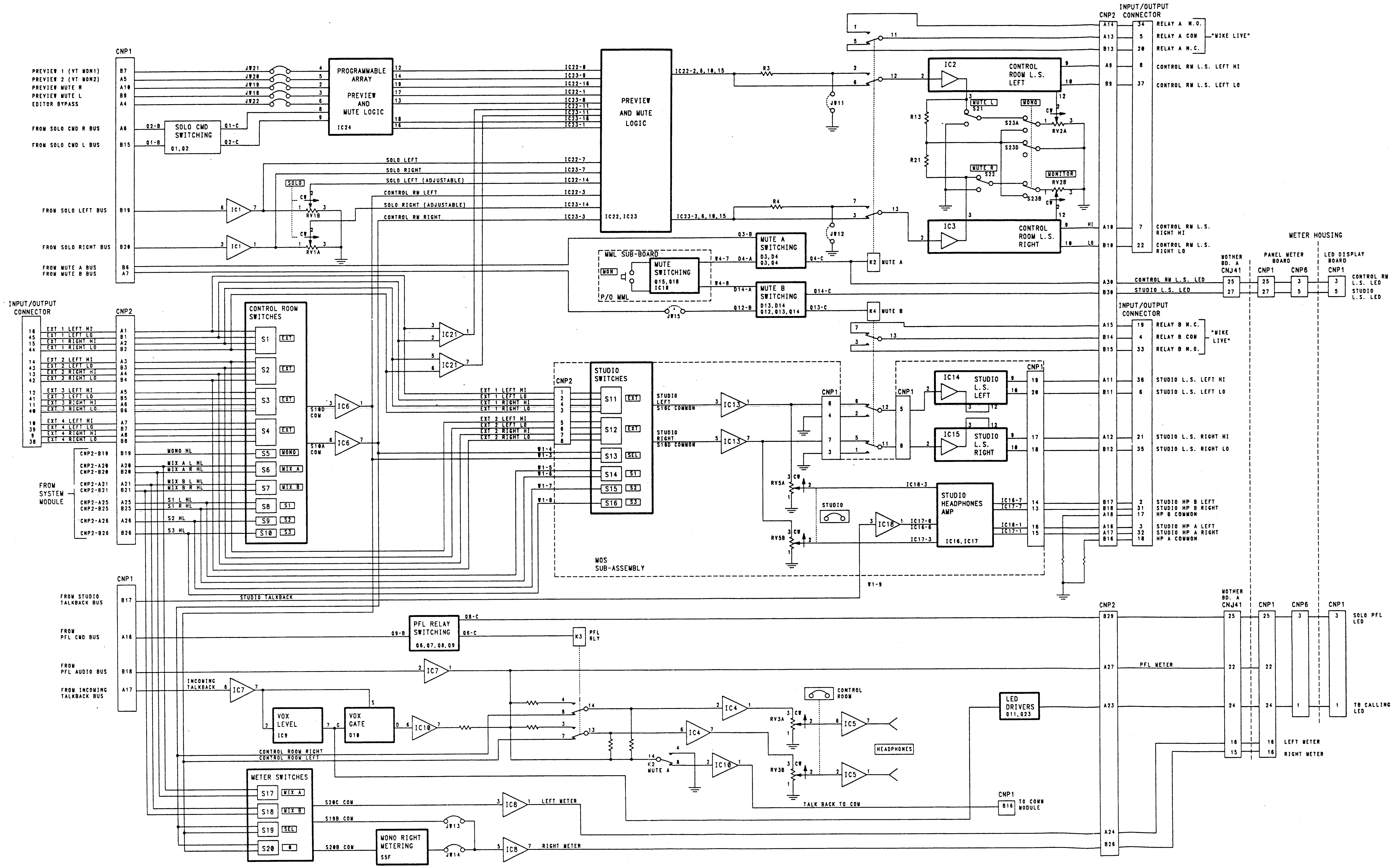

PFL
AUD
CMD
SOLO
L
R
CMD
MUTES
A
B
DYN CONTROL
1
2
3
4
SENDS
1L
1R
2
3
GROUPS
1
2
3
4
MIX
L
R
MIX L
GP 1
GP 3
DYN CHANNEL SELECT
DYN AUDIO SAMPLING
DYNAMICS CHANNEL SELECT
DYN AUDIO 1
DYN AUDIO 2
DYN AUDIO 3
DYN AUDIO 4
TO DYN AUDIO BUSES
DYN CONT
IN
OUT
VCA 1
FDR
+5V
FADER
IN
OUT
VCA 2
FDR
DYN CONT
ST.B
SEP
MIX R
GP 2
GP 4
JW11
MASTER RESET TO GROUP, INPUT/OUTPUT AND STEREO INPUT MODULES
MIX A L HL TO MON
MIX A L
MIX A R HL TO MON
MIX A R
MIX B L HL TO MON
MIX B L
MIX B R HL TO MON
MIX B R
MONO SUMMING
MONO
MONO HL
TO MONITOR MODULE
OUTPUT XFMRS
SEND 1 LEFT
SEND 1 RIGHT
SEND 2
SEND 3
MUTE
SEND 1L LEVEL
SEND 1R LEVEL
SEND 2 LEVEL
SEND 3 LEVEL
MUTE
MUTE
SEND 1L HL TO MON
SEND 1 LEFT
SEND 1R HL TO MON
SEND 1 RIGHT
SEND 2 HL TO MON
SEND 2
SEND 3 HL TO MON
SEND 3
INPUT/OUTPUT CONNECTOR
MASTER MODULE
RECORDER ENABLE FROM EDITOR
EXT 1 LEFT
EXT 1 RIGHT
SOLO LEFT
SOLO RIGHT
SOLO
SOLO CMD
SOLO RELAY CONTROL
SOLO
PFL CMD
SOLO RELAY CONTROL
PFL
PFL AUDIO
TO MTR HSG PFL METER
INCOMING TALKBACK
PRESET
VOX LEVEL
VOX GATE
TO MTR HSG TB INCOMING LED
MUTE A
MUTE B
TO METER HOUSING SOLO/PFL LED
CONT RM
HEADPHONES
MUTE CONTROL
MON
MUTE A
TO METER HOUSING CONT RM MUTE LED
TO METER HOUSING STUDIO MUTE LED
MUTE B
STUDIO MUTE RELAY
CONTROL ROOM MUTE RELAY
MUTE L
MUTE R
MONO SUM
MONITOR
MONO
CONT RM LS LEFT
CONT RM LS RIGHT
INPUT/OUTPUT CONNECTOR
INPUT/OUTPUT CONNECTOR
EXT 1 L
EXT 1 R
EXT 2 L
EXT 2 R
EXT 3 L
EXT 3 R
EXT 4 L
EXT 4 R
HIGH LEVEL SIGNALS FROM MASTER MODULE
MONO HL
MIX A L HL
MIX A R HL
MIX B L HL
MIX B R HL
SEND 1L HL
SEND 1R HL
SEND 2 HL
SEND 3 HL
CONTROL ROOM INPUT SELECT
EXT
EXT
EXT
EXT
MONO
MIX A
MIX B
S1
S2
S3
LEFT
RIGHT
EXT 1 RIGHT
EXT 1 LEFT
EXT 2 RIGHT
EXT 2 LEFT
SEND 1 RIGHT
SEND 1 LEFT
SEND 2
SEND 3
STUDIO INPUT SELECT
SEL
EXT
EXT
S1
S2
S3
MIX A RIGHT
MIX A LEFT
MIX B RIGHT
MIX B LEFT
METER SELECT
SEL
0
MIX A
MIX B
LEFT METER
TO METER HOUSING
RIGHT METER
INPUT/OUTPUT CONNECTOR
STUDIO LS LEFT
STUDIO LS RIGHT
STUDIO
LEFT
STUDIO HP A
RIGHT
LEFT
STUDIO HP B
RIGHT
MONITOR MODULE

NOTE: ALTHOUGH NOT INDICATED, ALL BUSES WITH SIMILAR LABELS ARE SERIAL AND CONTINUOUS.

INPUT MODULE
MXBK-2901

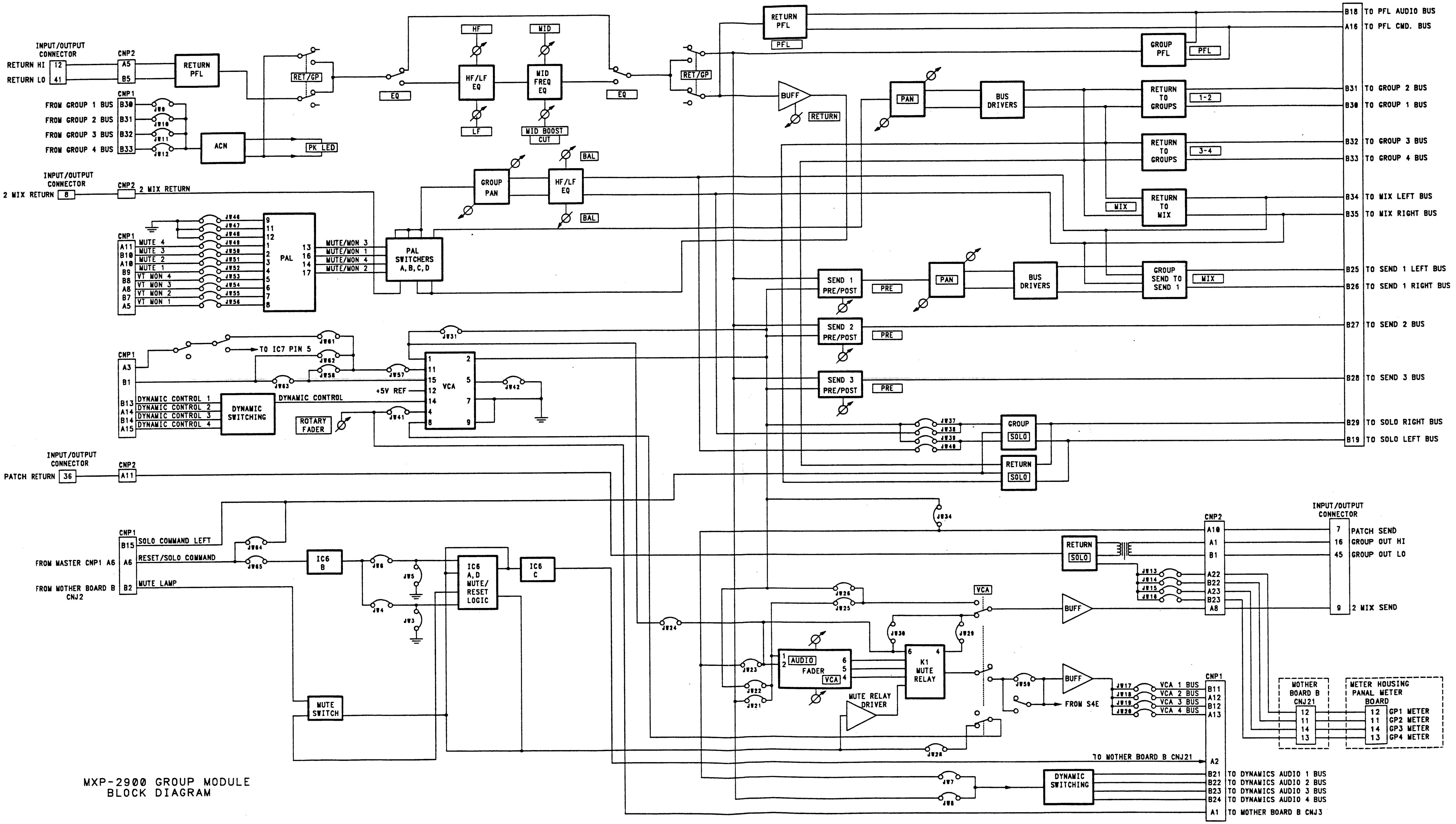

I/O CONN
CNP2
15
45
13
42
2
3
32
A1
B1
A4
B4
B17
A16
A17
INPUT A HI
INPUT A LO
INPUT B HI
INPUT B LO
CNP3
INPUT A MODULE
CNP4
INPUT B MODULE
REVERSE TALKBALK
COUGH A SELECT
COUGH B SELECT
IOS
REVERSE
PK
LOW PASS FILTER
LF/HF EQ
MID EQ
MID EQ
EQ
JW17
JW16
IOS
CHAN
EQ
MIC
LINE
MIC
LINE
PRE FADER AMPLIFIER
PRE
POST
SEND 1
PAN
1L
1R
SEND 1 BUS DRIVERS
DYNAMICS SWITCHING
CHANNEL SEND SELECT
MIX
CNP1
B21
B22
B23
B24
B25
B26
TO DYN AUDIO 1 BUS
TO DYN AUDIO 2 BUS
TO DYN AUDIO 3 BUS
TO DYN AUDIO 4 BUS
TO SEND 1 L BUS
TO SEND 1 R BUS
CNJ1
CNJ1
AEF
VC
LOCAL
JW24
JW23
VCA
JW15
FADER DOWN SWITCH
OPTIONAL RELAY CARD
PFL
SEND 3 PRE/POST
PSL
SEND 2 PRE/POST
CHANNEL TO MIX
MIX
CHANNEL TO GRP 1-2
1-2
CHANNEL TO GRP 3-4
3-4
B18
A16
B34
B35
B28
B27
B30
B31
B32
B33
TO PFL AUDIO BUS
TO PFL COMMAND BUS
TO MIX L BUS
TO MIX R BUS
TO SEND 3 BUS
TO SEND 2 BUS
TO GROUP 1 BUS
TO GROUP 2 BUS
TO GROUP 3 BUS
TO GROUP 4 BUS
MIC
COUGH SWITCHING
LINE
CNP1
B11
A12
B12
A13
B13
A14
B14
A15
B1
A3
B3
A1
B1
VCA GROUP 1
VCA GROUP 2
VCA GROUP 3
VCA GROUP 4
DYN CONTROL 1
DYN CONTROL 2
DYN CONTROL 3
DYN CONTROL 4
FADER FROM AUTOMATION
AUTOMATION CONTROL IN
EDITOR CONTROL IN
SOLO CMD R FROM EDITOR
SOLO CMD L FROM EDITOR
VCA GROUP SWITCHING
DYNAMIC CONTROL SWITCHING
JW29
JW28
JW27
UP/DOWN LEDS
JW26
JW25
CHAN PAN
L
R
CHAN BUS DRIVERS
CHANNEL SOLO
SOLO
B19
B20
TO SOLO L BUS
TO SOLO R BUS
JW22
CNP11
FADER
DIRECT LINE OUT SOLO
JW30
A1
B15
A6
FADER TO AUTOMATN
SOLO CMD L BUS
SOLO CMD R BUS
CNJ1
CNJ1
AEF
CNP2
B18
B9
SOLO CMD L FROM EDITOR
SOLO CMD R FROM EDITOR
I/O CONN
4
33
30
B14
B15
A11
MIC
MUTE A SEL
LINE
MUTE B SEL
PATCH RETURN
JW19
JW18
JW20
JW21
MUTE B CONTROL
MUTE A CONTROL
A7
B6
A2
MUTE B
MUTE A
MUTE CMD OUT
LO HYBRID
IC9
DIRECT OUTPUT AMPLIFIER
IC9
SOLO AMPLFIER
DIRECT OUTPUT
IOS
MIX
3-4
1-2
RELAY CONTROL K1
LINE
MIC
CNP2
A13
B13
A14
B12
A12
B11
A8
B8
A10
I/O CONN
5
20
34
35
21
6
9
30
7
B RELAY N.C.
B RELAY COM.
B RELAY N.O.
A RELAY N.O.
A RELAY COM.
A RELAY N.C.
DIRECT OUTPUT HI
DIRECT OUTPUT LO
PATCH SEND
CNP1
B2
A8
MUTE LAMP IN
MASTER RESET IN
MUTE SWITCH
MUTE/ RESET LOGIC
MUTE CMD OUT
MUTE

MONITOR MODULE

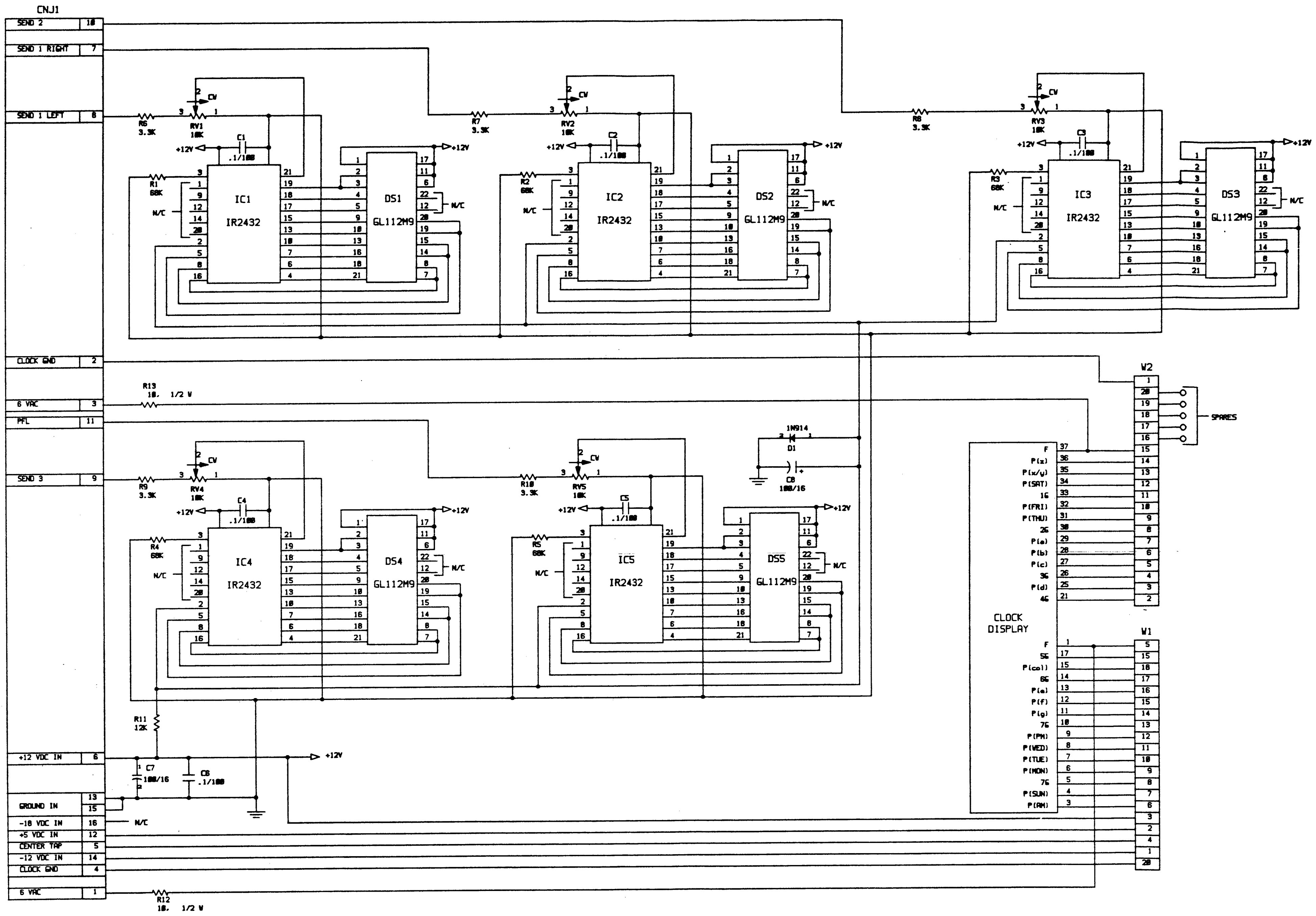


CNP1
PREVIEW 1 (VT MON1)
PREVIEW 2 (VT MON2)
PREVIEW MUTE R
PREVIEW MUTE L
EDITOR BYPASS
FROM SOLO CMD R BUS
FROM SOLO CMD L BUS
SOLO CMD SWITCHING
Q1,Q2
PROGRAMMABLE ARRAY
PREVIEW AND MUTE LOGIC
IC24
PREVIEW AND MUTE LOGIC
IC22,IC23
SOLO LEFT
SOLO RIGHT
SOLO LEFT (ADJUSTABLE)
CONTROL RM LEFT
SOLO RIGHT (ADJUSTABLE)
CONTROL RM RIGHT
SOLO
RV1B
RV1A
FROM SOLO LEFT BUS
FROM SOLO RIGHT BUS
FROM MUTE A BUS
FROM MUTE B BUS
IC1
MUTE A SWITCHING
D3,D4
Q3,Q4
MUTE B SWITCHING
D13,D14
Q12,Q13,Q14
MML SUB-BOARD
MUTE SWITCHING
Q15,Q18
IC19
MON
P/O MML
JW11
JW12
JW15
K2 MUTE A
K4 MUTE B
IC2
CONTROL ROOM L.S. LEFT
IC3
CONTROL ROOM L.S. RIGHT
R13
R21
MUTE L
S21
MONO
S23A
RV2A
S23D
MUTE R
S22
MONITOR
RV2B
S23B
INPUT/OUTPUT CONNECTOR
CNP2
RELAY A N.O.
RELAY A COM
RELAY A N.C.
"MIKE LIVE"
CONTROL RM L.S. LEFT HI
CONTROL RM L.S. LEFT LO
CONTROL RM L.S. RIGHT HI
CONTROL RM L.S. RIGHT LO
CONTROL RM L.S. LED
STUDIO L.S. LED
METER HOUSING
MOTHER BD. A CNJ41
PANEL METER BOARD
LED DISPLAY BOARD
CNP1
CNP6
CONTROL RM L.S. LED
STUDIO L.S. LED
RELAY B N.C.
RELAY B COM
RELAY B N.O.
"MIKE LIVE"
STUDIO L.S. LEFT HI
STUDIO L.S. LEFT LO
STUDIO L.S. RIGHT HI
STUDIO L.S. RIGHT LO
STUDIO HP B LEFT
STUDIO HP B RIGHT
HP B COMMON
STUDIO HP A LEFT
STUDIO HP A RIGHT
HP A COMMON
INPUT/OUTPUT CONNECTOR
EXT 1 LEFT HI
EXT 1 LEFT LO
EXT 1 RIGHT HI
EXT 1 RIGHT LO
EXT 2 LEFT HI
EXT 2 LEFT LO
EXT 2 RIGHT HI
EXT 2 RIGHT LO
EXT 3 LEFT HI
EXT 3 LEFT LO
EXT 3 RIGHT HI
EXT 3 RIGHT LO
EXT 4 LEFT HI
EXT 4 LEFT LO
EXT 4 RIGHT HI
EXT 4 RIGHT LO
FROM SYSTEM MODULE
MONO HL
MIX A L HL
MIX A R HL
MIX B L HL
MIX B R HL
S1 L HL
S1 R HL
S2 HL
S3 HL
CONTROL ROOM SWITCHES
S1 EXT
S2 EXT
S3 EXT
S4 EXT
S5 MONO
S6 MIX A
S7 MIX B
S8 S1
S9 S2
S10 S3
S10C COM
S10A COM
IC6
IC21
STUDIO SWITCHES
S11 EXT
S12 EXT
S13 SEL
S14 S1
S15 S2
S16 S3
STUDIO LEFT S16C COMMON
STUDIO RIGHT S16D COMMON
IC13
IC14
STUDIO L.S. LEFT
IC15
STUDIO L.S. RIGHT
RV5A
RV5B
STUDIO
IC18
STUDIO HEADPHONES AMP
IC16,IC17
MOS SUB-ASSEMBLY
FROM STUDIO TALKBACK BUS
FROM PFL CMD BUS
FROM PFL AUDIO BUS
FROM INCOMING TALKBACK BUS
STUDIO TALKBACK
PFL RELAY SWITCHING
Q6,Q7,Q8,Q9
K3 PFL RLY
IC7
PFL METER
INCOMING TALKBACK
VOX LEVEL
IC9
VOX GATE
Q10
IC10
IC4
CONTROL ROOM
RV3A
IC5
HEADPHONES
RV3B
K2 MUTE A
CONTROL ROOM RIGHT
CONTROL ROOM LEFT
LED DRIVERS
Q11,Q23
TALK BACK TO COM
CNP1
TO COMM MODULE
METER SWITCHES
S17 MIX A
S18 MIX B
S19 SEL
S20 S
S20C COM
S19B COM
S20B COM
JW13
JW14
MONO RIGHT METERING
S5F
IC8
LEFT METER
RIGHT METER
SOLO PFL LED
TB CALLING LED
LEFT METER
RIGHT METER

GROUP MODULE


INPUT/OUTPUT CONNECTOR
RETURN HI 12
RETURN LO 41
CNP2 A5 B5
RETURN PFL
CNP1
FROM GROUP 1 BUS B30
FROM GROUP 2 BUS B31
FROM GROUP 3 BUS B32
FROM GROUP 4 BUS B33
JW9 JW10 JW11 JW12
ACN
PK LED
RET/GP
EQ
HF
HF/LF EQ
LF
MID
MID FREQ EQ
MID BOOST CUT
2 MIX RETURN 8
GROUP PAN
HF/LF EQ
BAL
MUTE 4 MUTE 3 MUTE 2 MUTE 1
VT MON 4 VT MON 3 VT MON 2 VT MON 1
A11 B10 A10 B9 B8 A8 B7 A5
JW46 JW47 JW48 JW49 JW50 JW51 JW52 JW53 JW54 JW55 JW56
PAL
MUTE/MON 3 MUTE/MON 1 MUTE/MON 4 MUTE/MON 2
PAL SWITCHERS A,B,C,D
TO IC7 PIN 5
A3 B1
JW61 JW62 JW58 JW63 JW57 JW31 JW41 JW42
VCA
+5V REF
DYNAMIC CONTROL 1 DYNAMIC CONTROL 2 DYNAMIC CONTROL 3 DYNAMIC CONTROL 4
B13 A14 B14 A15
DYNAMIC SWITCHING
DYNAMIC CONTROL
ROTARY FADER
PATCH RETURN 36
CNP2 A11
CNP1 B15 SOLO COMMAND LEFT
FROM MASTER CNP1 A6 RESET/SOLO COMMAND
FROM MOTHER BOARD B CNJ2 B2 MUTE LAMP
JW64 JW65
IC6 B
JW6 JW5 JW4 JW3
IC6 A,D MUTE/RESET LOGIC
IC6 C
MUTE SWITCH
RETURN PFL
PFL
BUFF
RETURN
PAN
BUS DRIVERS
GROUP PFL
RETURN TO GROUPS 1-2
RETURN TO GROUPS 3-4
RETURN TO MIX
MIX
SEND 1 PRE/POST
SEND 2 PRE/POST
SEND 3 PRE/POST
PRE
GROUP SEND TO SEND 1
JW37 JW38 JW39 JW40
GROUP SOLO
RETURN SOLO
B18 TO PFL AUDIO BUS
A16 TO PFL CMD. BUS
B31 TO GROUP 2 BUS
B30 TO GROUP 1 BUS
B32 TO GROUP 3 BUS
B33 TO GROUP 4 BUS
B34 TO MIX LEFT BUS
B35 TO MIX RIGHT BUS
B25 TO SEND 1 LEFT BUS
B26 TO SEND 1 RIGHT BUS
B27 TO SEND 2 BUS
B28 TO SEND 3 BUS
B29 TO SOLO RIGHT BUS
B19 TO SOLO LEFT BUS
JW34
INPUT/OUTPUT CONNECTOR
CNP2 A10 A1 B1
7 PATCH SEND
16 GROUP OUT HI
45 GROUP OUT LO
RETURN SOLO
JW13 JW14 JW15 JW16
A22 B22 A23 B23 A8
VCA
BUFF
9 2 MIX SEND
JW26 JW25 JW24 JW30 JW29
JW23 JW22 JW21
AUDIO FADER VCA
K1 MUTE RELAY
MUTE RELAY DRIVER
JW59
BUFF
FROM S4E
JW17 JW18 JW19 JW20
VCA 1 BUS VCA 2 BUS VCA 3 BUS VCA 4 BUS
CNP1 B11 A12 B12 A13
MOTHER BOARD B CNJ21 12 11 14 13
METER HOUSING PANAL METER BOARD
12 GP1 METER
11 GP2 METER
14 GP3 METER
13 GP4 METER
JW28
TO MOTHER BOARD B CNJ21 A2
JW7 JW8
DYNAMIC SWITCHING
B21 TO DYNAMICS AUDIO 1 BUS
B22 TO DYNAMICS AUDIO 2 BUS
B23 TO DYNAMICS AUDIO 3 BUS
B24 TO DYNAMICS AUDIO 4 BUS
A1 TO MOTHER BOARD B CNJ3

MXP-2900 GROUP MODULE
BLOCK DIAGRAM


CNJ1
SEND 2
SEND 1 RIGHT
SEND 1 LEFT
CLOCK GND
6 VAC
PFL
SEND 3
+12 VDC IN
GROUND IN
-18 VDC IN
+5 VDC IN
CENTER TAP
-12 VDC IN
CLOCK GND
6 VAC
R6 3.3K
RV1 10K
CV
C1 .1/100
+12V
R1 68K
N/C
IC1 IR2432
DS1 GL112M9
R7 3.3K
RV2 10K
C2 .1/100
R2 68K
IC2 IR2432
DS2 GL112M9
R8 3.3K
RV3 10K
C3 .1/100
R3 68K
IC3 IR2432
DS3 GL112M9
R13 10. 1/2 W
R9 3.3K
RV4 10K
C4 .1/100
R4 68K
IC4 IR2432
DS4 GL112M9
R10 3.3K
RV5 10K
C5 .1/100
R5 68K
IC5 IR2432
DS5 GL112M9
1N914 D1
C8 100/16
R11 12K
C7 100/16
C6 .1/100
R12 10. 1/2 W
W2
SPARES
CLOCK DISPLAY
F
P(z)
P(x/y)
P(SAT)
1G
P(FRI)
P(THU)
2G
P(a)
P(b)
P(c)
3G
P(d)
4G
W1
F
5G
P(col)
6G
P(e)
P(f)
P(g)
7G
P(PM)
P(WED)
P(TUE)
P(MON)
7G
P(SUN)
P(AM)

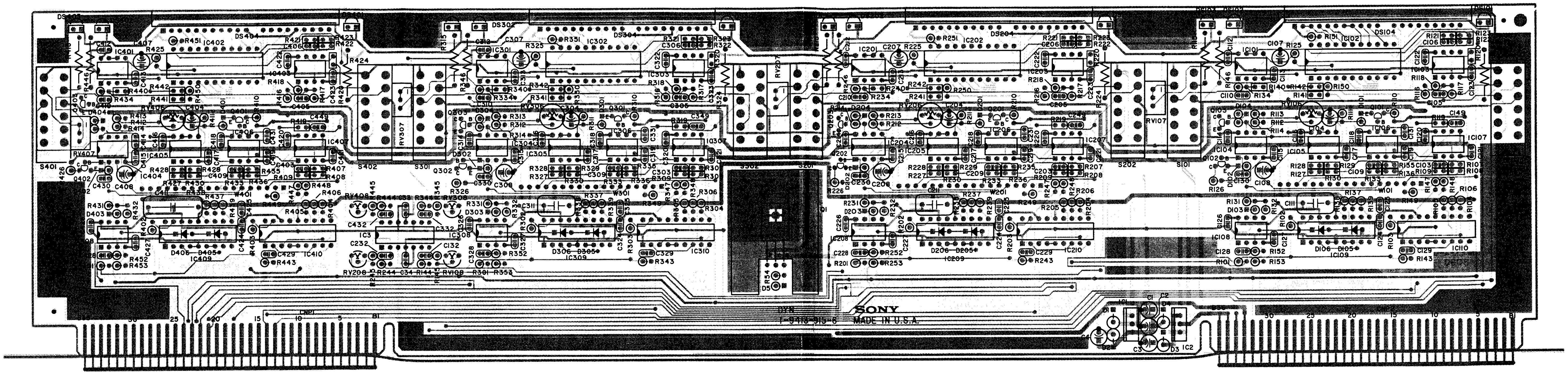
NOTES: (UNLESS OTHERWISE SPECIFIED)

1. RESISTOR VALUES ARE IN OHMS. 1/6 W 5%.
2. CAPACITOR VALUES ARE IN MICROFARADS/VOLTS.

HIGHEST REFERENCE DESIGNATORS USED						
C8	D1	DS5	IC5	R13	RV5	

DYM

DYM BOARD (MXBK-2903)
Dynamics Main Board

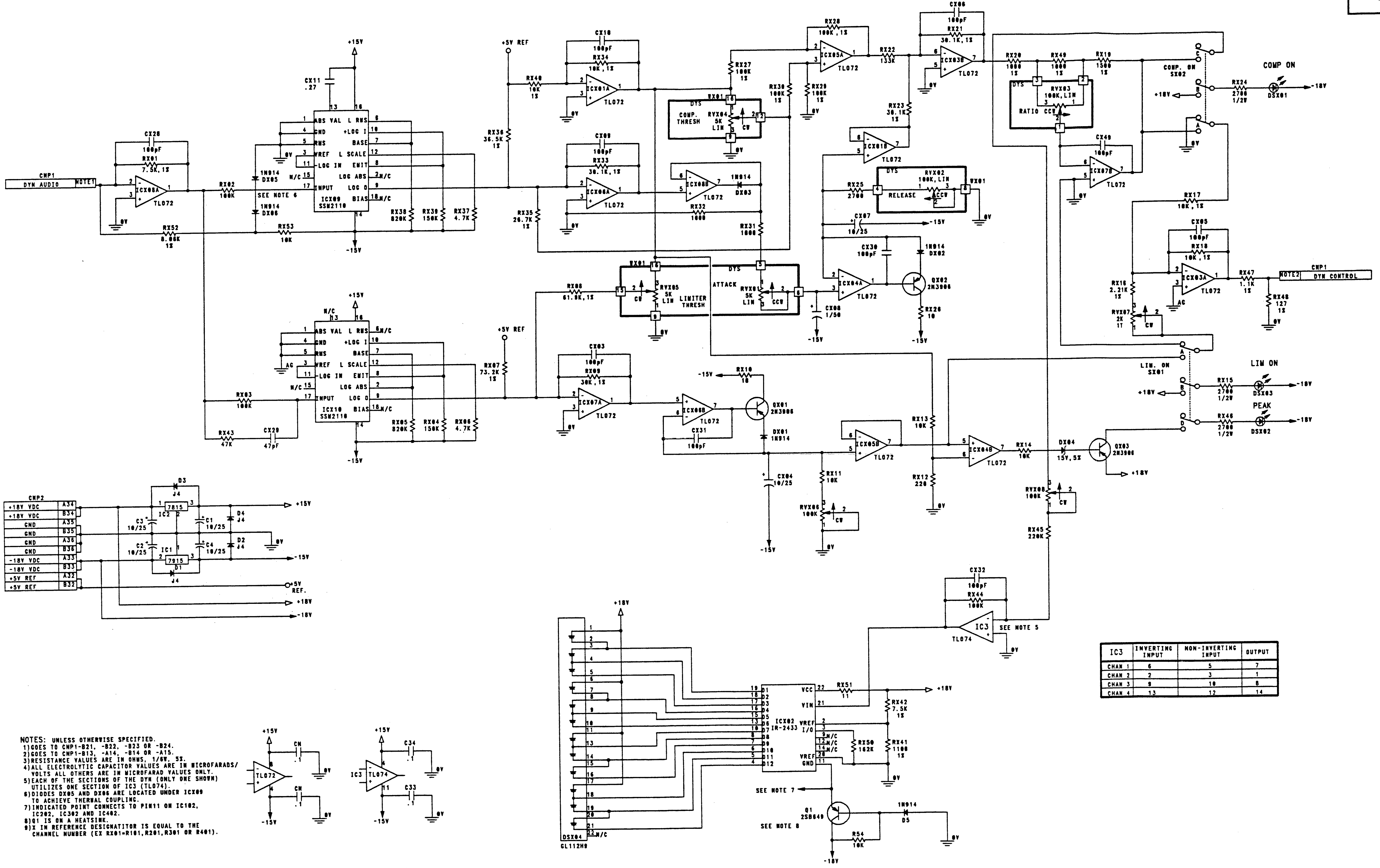

SONY
MADE IN U.S.A.
DYN
1-9413-315-6
S401
S402
S301
S302
S201
S202
S101
RV407
RV307
RV207
RV107

▨ SOLDER SIDE
■ COMPONENT SIDE

REFERENCE DESIGNATORS
CONTROLS AND INDICATORS

COMPRESSOR 1 section		**COMPRESSOR 3 section**	
DS101	ON (UPPER)	DS301	ON (UPPER)
DS102	PEAK	DS302	PEAK
DS103	ON (LOWER)	DS303	ON (LOWER)
DS104	GAIN REDUCTION	DS304	GAIN REDUCTION
S102	ON (UPPER)	S302	ON (UPPER)
S101	ON (LOWER)	S301	ON (LOWER)
COMPRESSOR 2 section		**COMPRESSOR 4 section**	
DS201	ON (UPPER)	DS401	ON (UPPER)
DS202	PEAK	DS402	PEAK
DS203	ON (LOWER)	DS403	ON (LOWER)
DS204	GAIN REDUCTION	DS404	GAIN REDUCTION
S202	ON (UPPER)	S402	ON (UPPER)
S201	ON (LOWER)	S401	ON (LOWER)

DYM

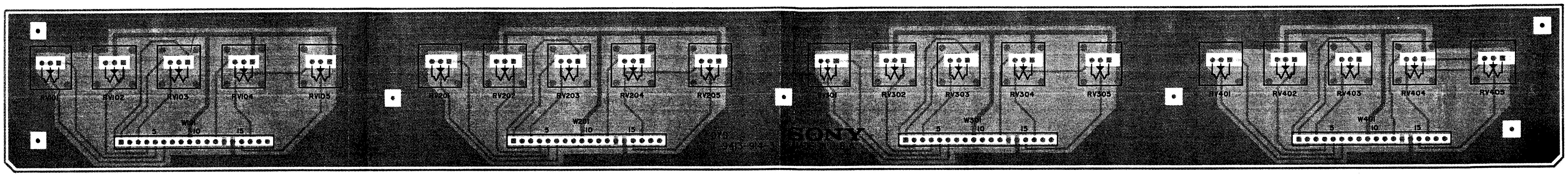

CNP1
DYN AUDIO
NOTE1
ICX08A
TL072
CX28 100pF
RX01 7.5K, 1%
RX02 100K
RX52 8.06K 1%
RX53 10K
ICX09 SSM2110
ICX10 SSM2110
+15V
-15V
+5V REF
1N914 DX05
1N914 DX06
SEE NOTE 6
RX38 820K
RX39 150K
RX37 4.7K
CX11 .27
ICX01A
ICX06A
ICX06B
ICX05A
ICX03B
ICX01B
ICX04A
ICX07A
ICX07B
ICX05B
ICX04B
ICX03A
DYS
COMP. THRESH
RVX04 5K LIN
ATTACK
RVX01 5K LIN
LIMITER THRESH
RVX05 5K LIN
RELEASE
RVX02 100K, LIN
RATIO
RVX03 100K, LIN
CW
CCW
COMP. ON SX02
COMP ON
DSX01
LIM. ON SX01
LIM ON
DSX03
PEAK
DSX02
QX01 2N3906
QX02 2N3906
QX03 2N3906
NOTE2
DYN CONTROL
RVX07 2K 1T
RVX06 100K
RVX08 100K
RX45 220K
CX32 100pF
RX44 100K
IC3
TL074
SEE NOTE 5
DSX04
GL112H0
ICX02 IR-2433
SEE NOTE 7
Q1 2SB649
SEE NOTE 8
1N914 D5
RX54 10K
RX51 11
RX42 7.5K 1%
RX50 182K
RX41 1100 1%
CNP2
+18V VDC
GND
-18V VDC
+5V REF
7815 IC2
7915 IC1
D1
D2
D3
D4
J4
C1 10/25
C2 10/25
C3 10/25
C4 10/25
+18V
-18V
0V

NOTES: UNLESS OTHERWISE SPECIFIED.
1) GOES TO CNP1-B21, -B22, -B23 OR -B24.
2) GOES TO CNP1-B13, -A14, -B14 OR -A15.
3) RESISTANCE VALUES ARE IN OHMS, 1/6W, 5%.
4) ALL ELECTROLYTIC CAPACITOR VALUES ARE IN MICROFARADS/VOLTS ALL OTHERS ARE IN MICROFARAD VALUES ONLY.
5) EACH OF THE SECTIONS OF THE DYN (ONLY ONE SHOWN) UTILIZES ONE SECTION OF IC3 (TL074).
6) DIODES DX05 AND DX06 ARE LOCATED UNDER ICX09 TO ACHIEVE THERMAL COUPLING.
7) INDICATED POINT CONNECTS TO PIN11 ON IC102, IC202, IC302 AND IC402.
8) Q1 IS ON A HEATSINK.
9) X IN REFERENCE DESIGNATITOR IS EQUAL TO THE CHANNEL NUMBER (EX RX01=R101,R201,R301 OR R401).

IC3	INVERTING INPUT	NON-INVERTING INPUT	OUTPUT
CHAN 1	6	5	7
CHAN 2	2	3	1
CHAN 3	9	10	8
CHAN 4	13	12	14

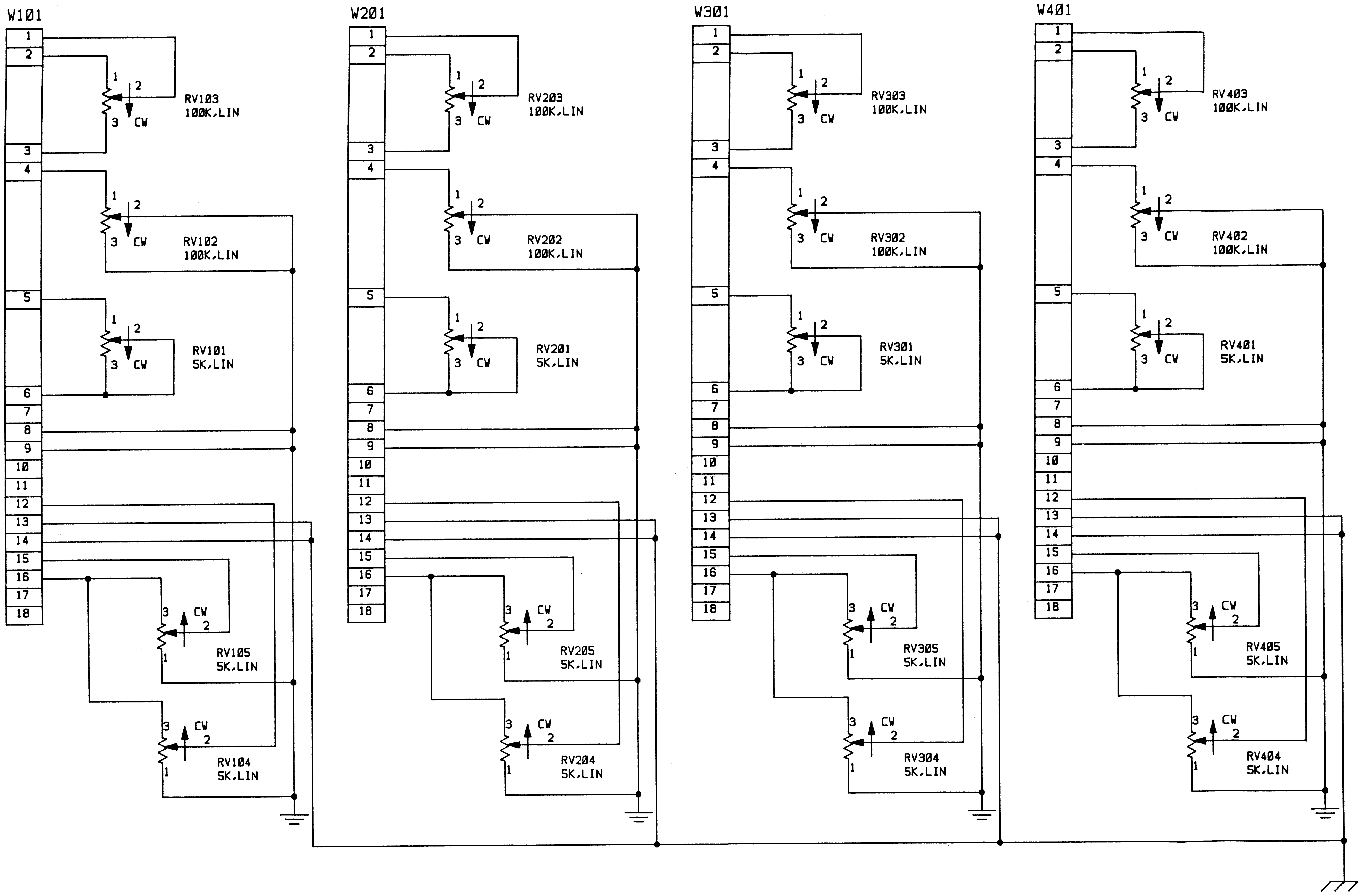
DECOUPLING CAPS

IC	+15V	-15V
X01	CX12 .1	CX13 .1
X03	CX22 .1	CX23 .1
X04	CX14 .1	CX15 .1
X05	CX16 .1	CX17 .1
X06	CX18 .1	CX19 .1
X07	CX20 .1	CX21 .1
X08	CX26 .1	CX27 .1
X09	CX24 .1	CX25 .1


RV101
RV102
RV103
RV104
RV105
W101
5
10
15
RV201
RV202
RV203
RV204
RV205
W201
5
10
15
SONY
RV301
RV302
RV303
RV304
RV305
W301
5
10
15
RV401
RV402
RV403
RV404
RV405
W401
5
10
15

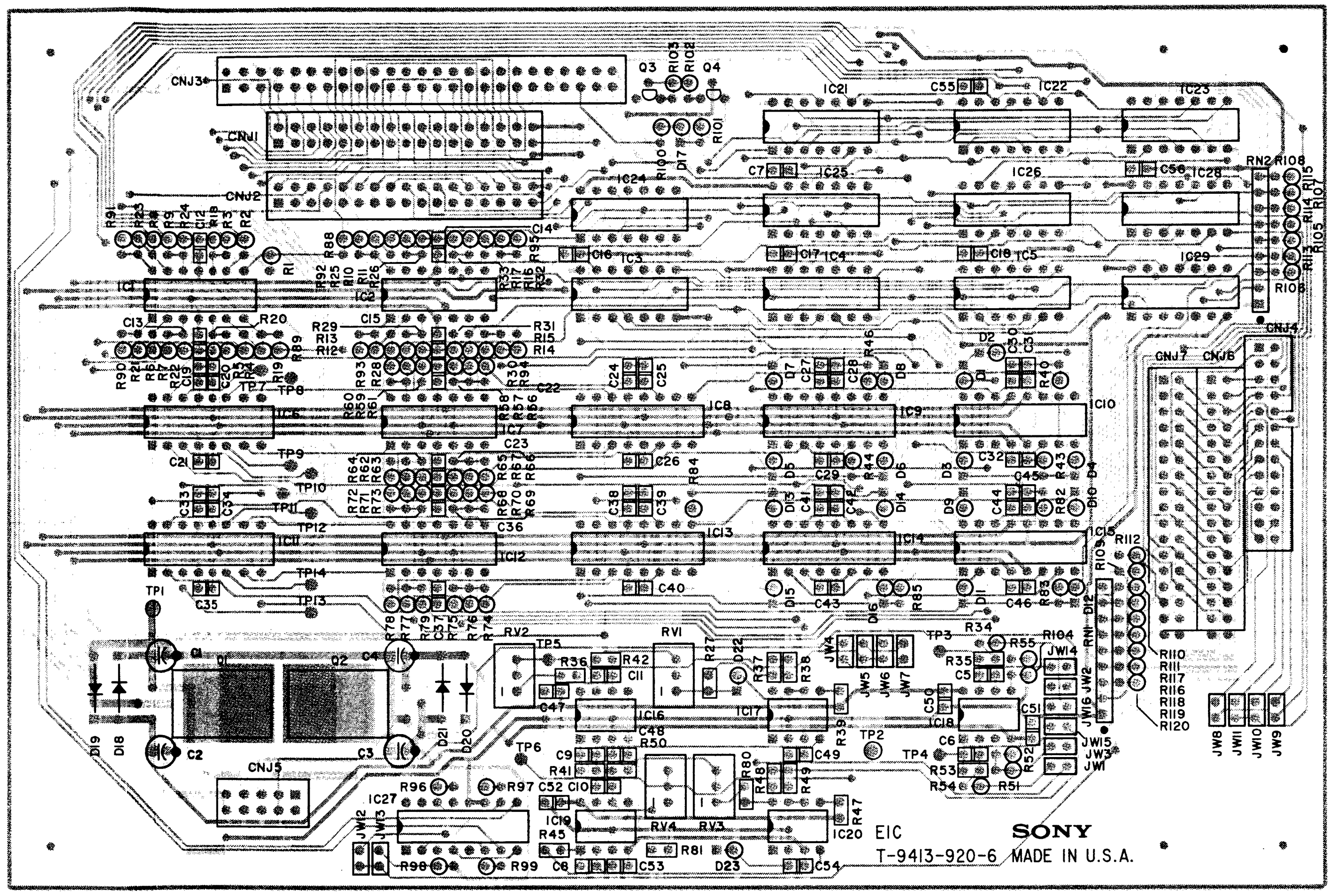
▨ SOLDER SIDE
■ COMPONENT SIDE

REFERENCE DESIGNATORS CONTROLS AND INDICATORS			
COMPRESSOR 1 section		**COMPRESSOR 3 section**	
RV101	ATTACK	RV301	ATTACK
RV102	RELEASE	RV302	RELEASE
RV103	RATIO	RV303	RATIO
RV104	THRESH -20 +10	RV304	THRESH -20 +10
RV105	THRESH -12 +12	RV305	THRESH -12 +12
COMPRESSOR 2 section		**COMPRESSOR 4 section**	
RV201	ATTACK	RV401	ATTACK
RV202	RELEASE	RV402	RELEASE
RV203	RATIO	RV403	RATIO
RV204	THRESH -20 +10	RV404	THRESH -20 +10
RV205	THRESH -12 +12	RV405	THRESH -12 +12


W101
W201
W301
W401
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
CW
RV103
100K,LIN
RV102
100K,LIN
RV101
5K,LIN
RV105
5K,LIN
RV104
5K,LIN
RV203
100K,LIN
RV202
100K,LIN
RV201
5K,LIN
RV205
5K,LIN
RV204
5K,LIN
RV303
100K,LIN
RV302
100K,LIN
RV301
5K,LIN
RV305
5K,LIN
RV304
5K,LIN
RV403
100K,LIN
RV402
100K,LIN
RV401
5K,LIN
RV405
5K,LIN
RV404
5K,LIN

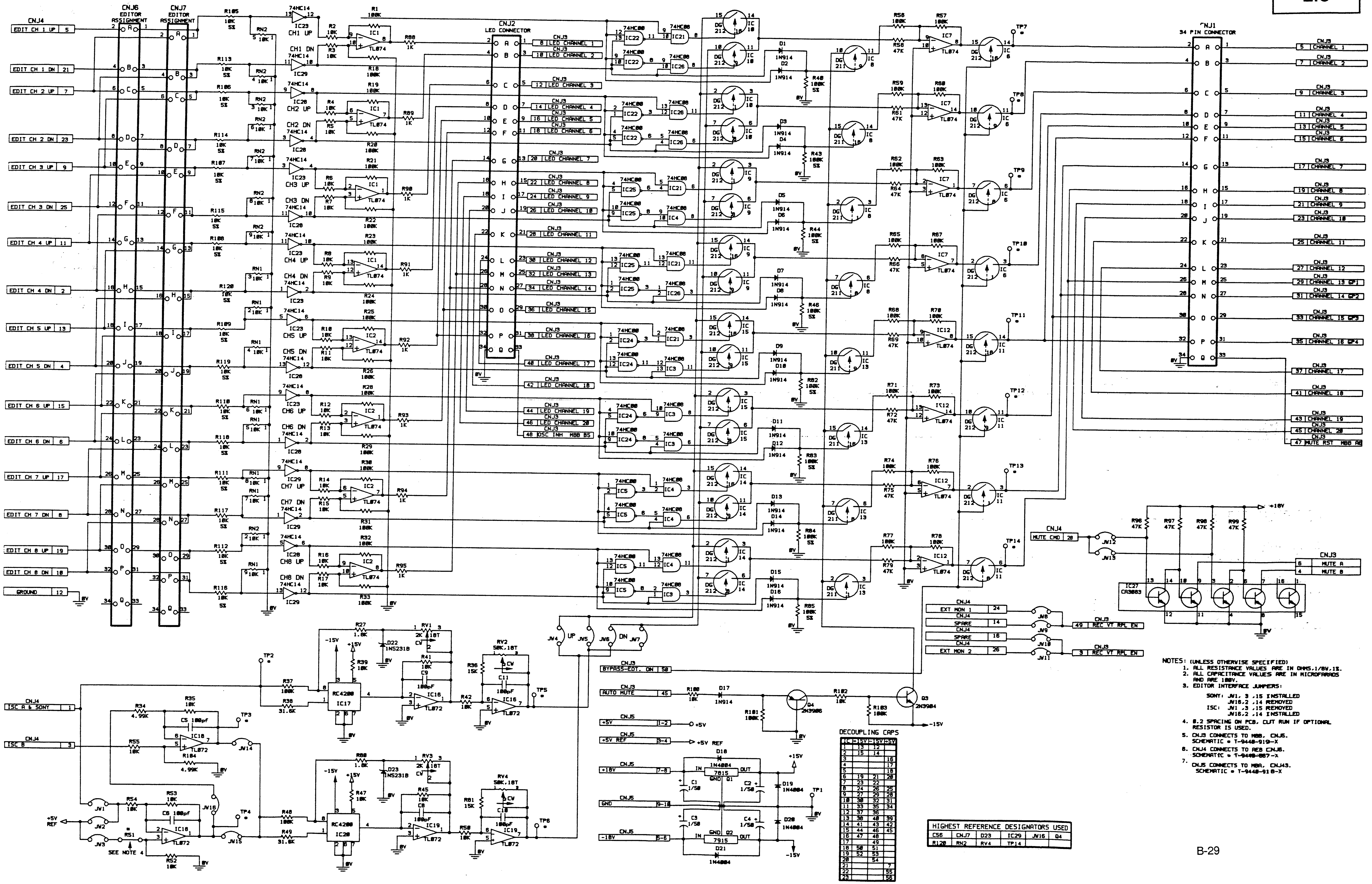
EIC

EIC BOARD
Editor Interface Board


CNJ3
CNJ1
CNJ2
CNJ4
CNJ5
CNJ6
CNJ7
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
IC19
IC20
IC21
IC22
IC23
IC24
IC25
IC26
IC27
IC28
IC29
Q1
Q2
Q3
Q4
RV1
RV2
RV3
RV4
TP1
TP2
TP3
TP4
TP5
TP6
EIC
SONY
T-9413-920-6
MADE IN U.S.A.

▨ SOLDER SIDE
■ COMPONENT SIDE

EIC


CNJ4
EDIT CH 1 UP 5
EDIT CH 1 DN 21
EDIT CH 2 UP 7
EDIT CH 2 DN 23
EDIT CH 3 UP 9
EDIT CH 3 DN 25
EDIT CH 4 UP 11
EDIT CH 4 DN 2
EDIT CH 5 UP 13
EDIT CH 5 DN 4
EDIT CH 6 UP 15
EDIT CH 6 DN 6
EDIT CH 7 UP 17
EDIT CH 7 DN 8
EDIT CH 8 UP 19
EDIT CH 8 DN 10
GROUND 12
CNJ6 EDITOR ASSIGNMENT
CNJ7 EDITOR ASSIGNMENT
CNJ2 LED CONNECTOR
CNJ1 34 PIN CONNECTOR
CNJ3
LED CHANNEL 1
LED CHANNEL 2
LED CHANNEL 3
LED CHANNEL 4
LED CHANNEL 5
LED CHANNEL 6
LED CHANNEL 7
LED CHANNEL 8
LED CHANNEL 9
LED CHANNEL 10
LED CHANNEL 11
LED CHANNEL 12
LED CHANNEL 13
LED CHANNEL 14
LED CHANNEL 15
LED CHANNEL 16
LED CHANNEL 17
LED CHANNEL 18
LED CHANNEL 19
LED CHANNEL 20
OSC INH MBB B5
CHANNEL 1
CHANNEL 2
CHANNEL 3
CHANNEL 4
CHANNEL 5
CHANNEL 6
CHANNEL 7
CHANNEL 8
CHANNEL 9
CHANNEL 10
CHANNEL 11
CHANNEL 12
CHANNEL 13 GP1
CHANNEL 14 GP2
CHANNEL 15 GP3
CHANNEL 16 GP4
CHANNEL 17
CHANNEL 18
CHANNEL 19
CHANNEL 20
MUTE RST MBB A6
MUTE CMD 20
MUTE A
MUTE B
IC27 CA3083
EXT MON 1 24
SPARE 14
SPARE 16
EXT MON 2 26
REC VT RPL EN
BYPASS-EDT. ON 50
AUTO MUTE 45
ISC A & SONY 1
ISC B 3
RC4200 IC17
RC4200 IC20
TL072
TL074
74HC14
74HC00
DG 212
DG 211
1N914
1N5231B
2N3906
2N3904
7815
7915
1N4004
+5V
+5V REF
+18V
-18V
GND
+15V
-15V
SEE NOTE 4
UP
DN

NOTES: (UNLESS OTHERWISE SPECIFIED)
1. ALL RESISTANCE VALUES ARE IN OHMS,1/8W,1%.
2. ALL CAPACITANCE VALUES ARE IN MICROFARADS AND ARE 100V.
3. EDITOR INTERFACE JUMPERS:

SONY: JW1, 3 ,15 INSTALLED
JW16,2 ,14 REMOVED
ISC: JW1 ,3 ,15 REMOVED
JW16,2 ,14 INSTALLED

4. 0.2 SPACING ON PCB, CUT RUN IF OPTIONAL RESISTOR IS USED.
5. CNJ3 CONNECTS TO MBB, CNJ5. SCHEMATIC = T-9440-919-X
6. CNJ4 CONNECTS TO AEB CNJ6. SCHEMATIC = T-9440-007-X
7. CNJ5 CONNECTS TO MBA, CNJ43. SCHEMATIC = T-9440-918-X

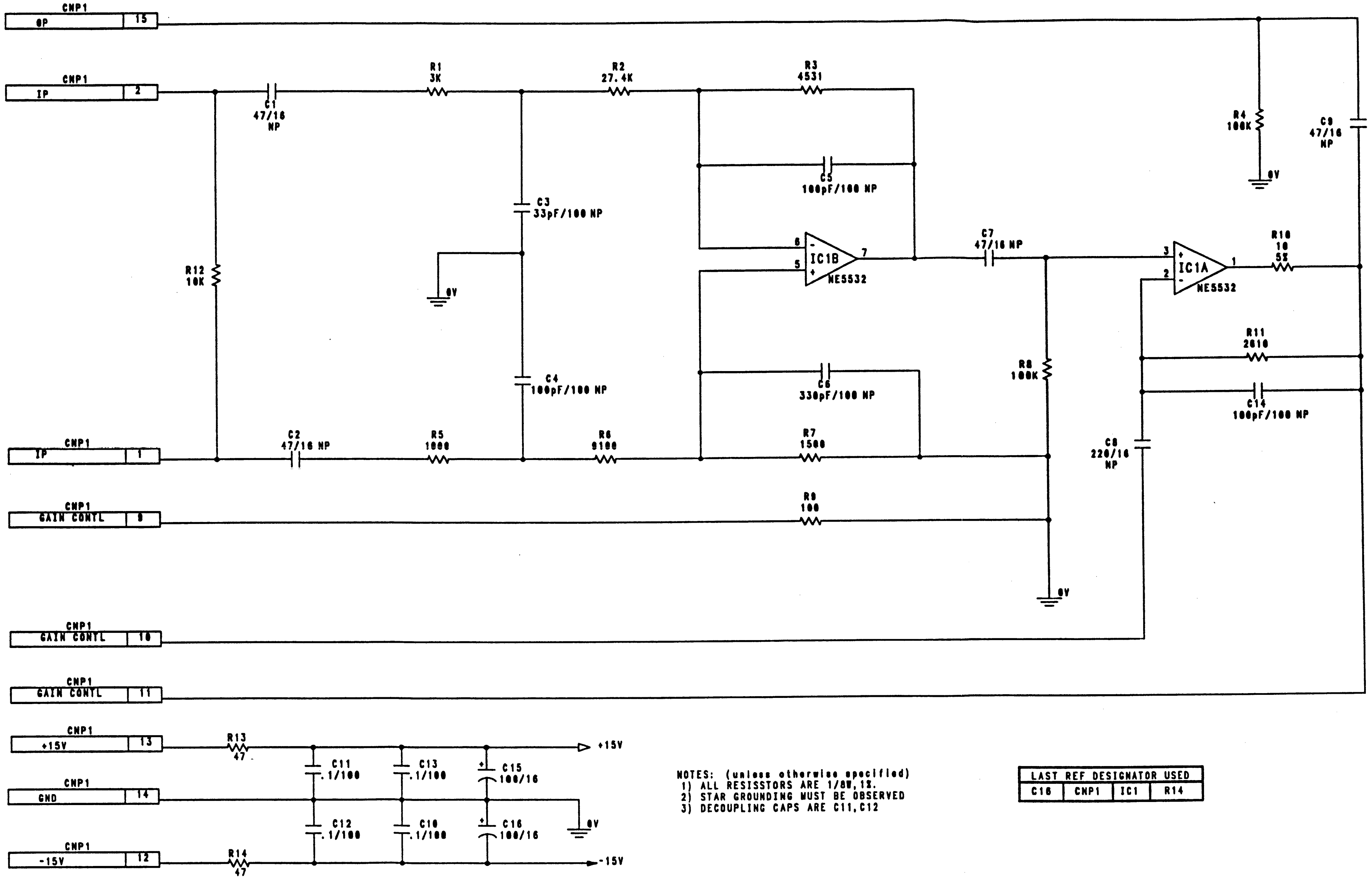
DECOUPLING CAPS

IC	+15V	-15V	+5V
1	13	12	
2	15	14	
3			16
4			17
5			18
6	19	21	20
7	23	22	
8	24	26	25
9	27	29	28
10	30	32	31
11	33	35	34
12	37	36	
13	38	40	39
14	41	43	42
15	44	46	45
16	47	48	
17		49	
18	50	51	
19	52	53	
20		54	
21			7
22			55
23			56

HIGHEST REFERENCE DESIGNATORS USED					
C56	CNJ7	D23	IC29	JW16	Q4
R120	RN2	RV4	TP14		

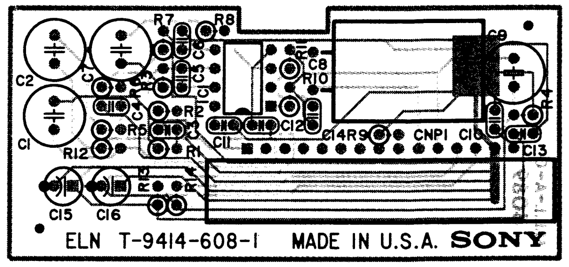
ELN (MXBK-LI24)

ELN BOARD (MXBK-LI24)
(MXBK-2901/2904/2909)
Electronic Line Amp


CNP1
0P 15
IP 2
IP 1
GAIN CONTL 8
GAIN CONTL 10
GAIN CONTL 11
+15V 13
GND 14
-15V 12
C1 47/16 NP
R1 3K
R2 27.4K
R3 4531
C5 100pF/100 NP
C3 33pF/100 NP
C4 100pF/100 NP
C6 330pF/100 NP
R12 10K
C2 47/16 NP
R5 1000
R6 9100
R7 1500
R9 100
R8 100K
IC1B NE5532
IC1A NE5532
C7 47/16 NP
R4 100K
C9 47/16 NP
R10 10 5%
R11 2010
C14 100pF/100 NP
C8 220/16 NP
0V
R13 47
R14 47
C11 .1/100
C13 .1/100
C15 100/16
C12 .1/100
C10 .1/100
C16 100/16
+15V
-15V

NOTES: (unless otherwise specified)
1) ALL RESISSTORS ARE 1/8W, 1%.
2) STAR GROUNDING MUST BE OBSERVED
3) DECOUPLING CAPS ARE C11, C12

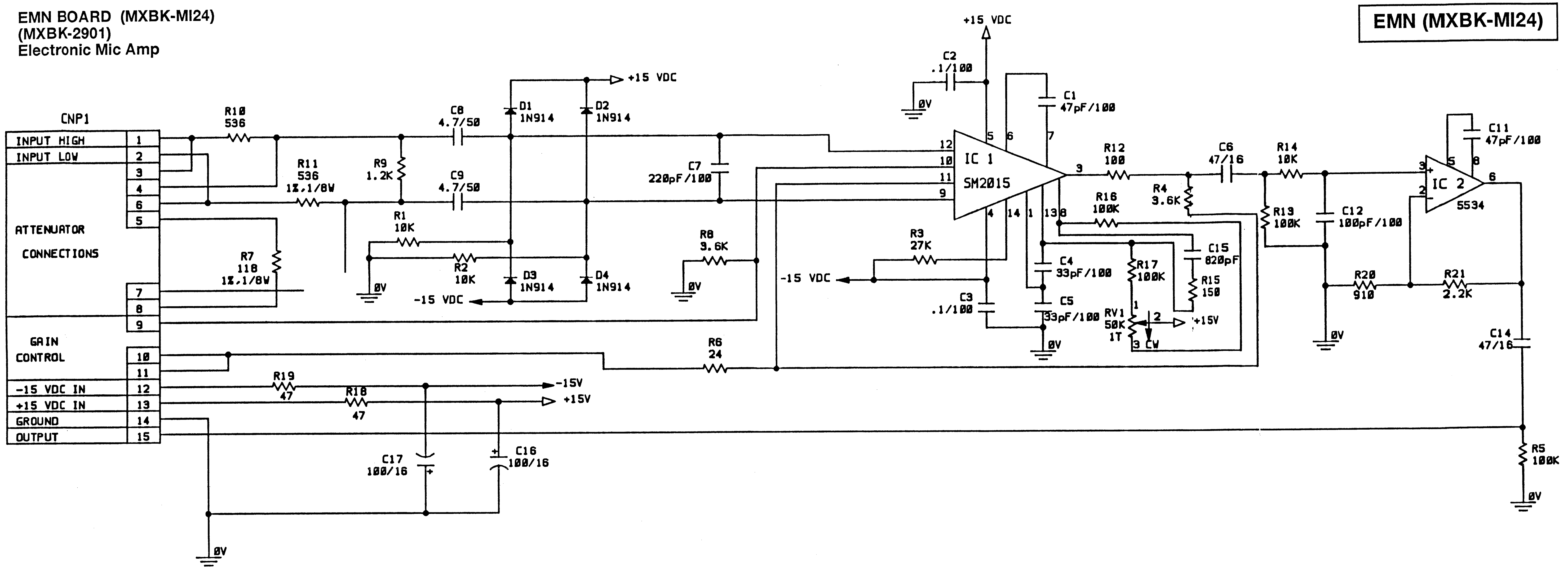
LAST REF DESIGNATOR USED			
C16	CNP1	IC1	R14

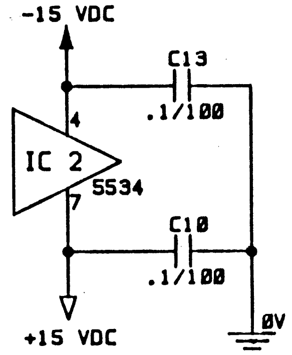

R7
R8
C9
C2
C1
C8
R10
R12
C15
C16
C11
C12
CNP1
R4
C13
ELN T-9414-608-1
MADE IN U.S.A.
SONY

▨ SOLDER SIDE
■ COMPONENT SIDE

EMN BOARD (MXBK-MI24)
(MXBK-2901)
Electronic Mic Amp

EMN (MXBK-MI24)

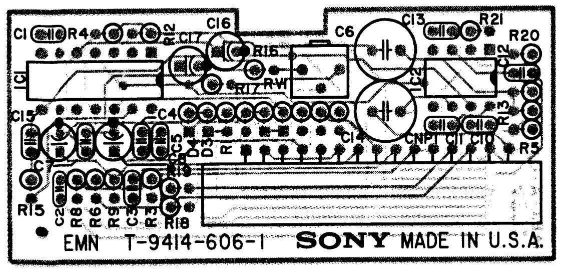

CNP1
INPUT HIGH 1
INPUT LOW 2
3
4
6
5
ATTENUATOR CONNECTIONS
7
8
9
GAIN CONTROL
10
11
-15 VDC IN 12
+15 VDC IN 13
GROUND 14
OUTPUT 15
R10 536
R11 536 1%,1/8W
R7 118 1%,1/8W
R9 1.2K
R1 10K
R2 10K
C8 4.7/50
C9 4.7/50
D1 1N914
D2 1N914
D3 1N914
D4 1N914
+15 VDC
-15 VDC
0V
C7 220pF/100
R8 3.6K
R6 24
R19 47
R18 47
-15V
+15V
C17 100/16
C16 100/16
+15 VDC
C2 .1/100
C1 47pF/100
IC 1 SM2015
12 10 11 9 5 6 7 3 4 14 1 13 8
R3 27K
C3 .1/100
C4 33pF/100
C5 33pF/100
R12 100
R16 100K
R4 3.6K
R17 100K
C15 820pF
R15 150
RV1 50K 1T
1 2 3 CW
+15V
C6 47/16
R14 10K
R13 100K
C12 100pF/100
C11 47pF/100
IC 2 5534
R20 910
R21 2.2K
C14 47/16
R5 100K
0V


-15 VDC
C13 .1/100
IC 2 5534
4
7
C10 .1/100
+15 VDC
0V

HIGHEST REFERENCE DESIGNATORS USED					
C17	D4	IC2	R21	CNP1	RV1

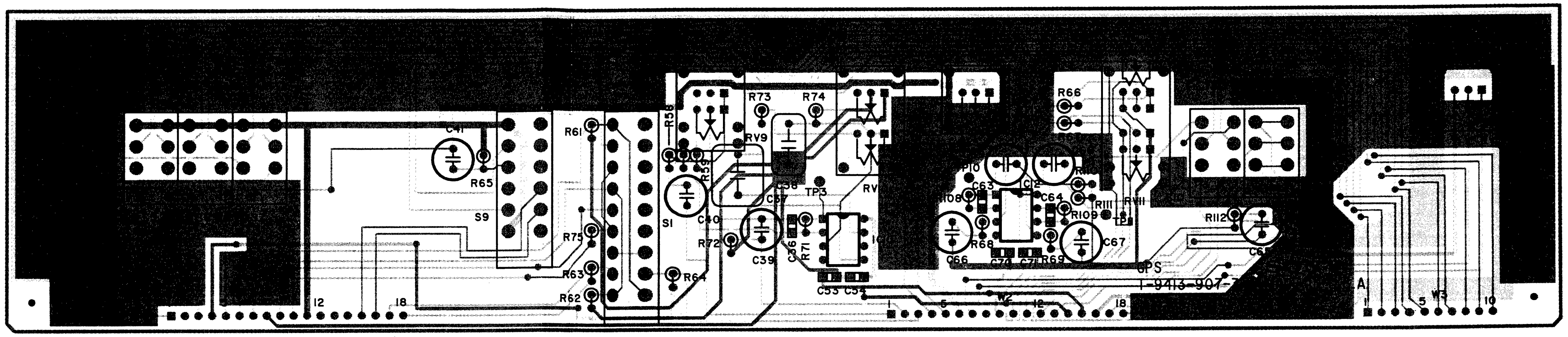
NOTES: (UNLESS OTHERWISE SPECIFIED)

1. RESISTANCE VALUES ARE IN OHMS, 1/6W, 5%.
2. CAPACITANCE VALUES ARE IN MICROFARADS/VOLTS.


C1 R4 R12 C16 C6 C13 R21 R20
IC1 R16 R17 RW IC2
C15 C4 CNP1 C11 C10 R3 R5
R15 C2 R6 R9 C3 R18
EMN T-9414-606-1 SONY MADE IN U.S.A.

▨ SOLDER SIDE
■ COMPONENT SIDE

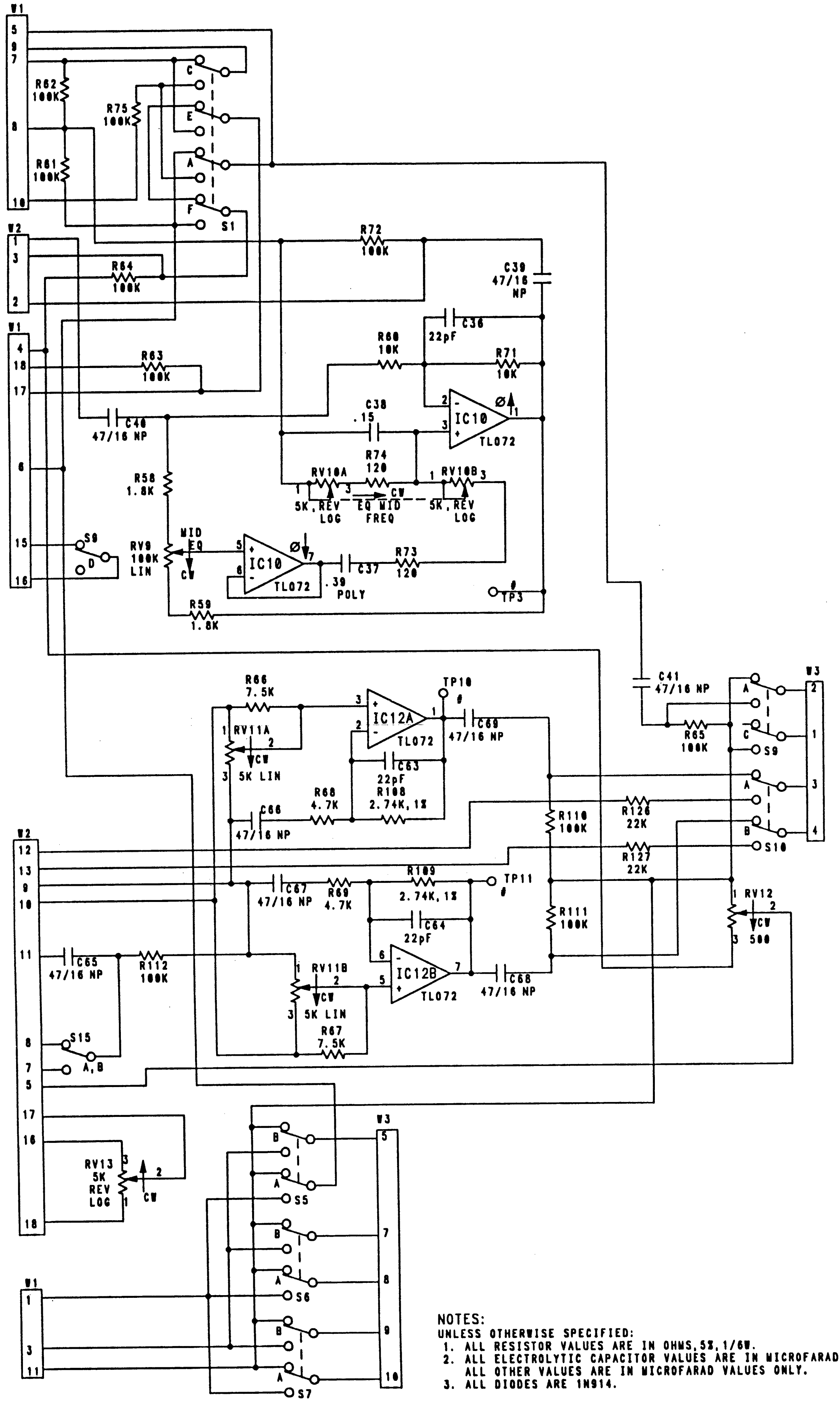
GPS BOARD (MXBK-2902)
Group Sub Board


R73
R74
RV9
C41
R65
S9
R61
R75
R63
R62
R58
R59
S1
C40
C37
C38
TP3
R72
C39
C36
R71
C53
C54
R64
R66
C63
IC12
C64
R108
R109
R110
R111
RV11
C66
R68
C70
C71
R69
C67
R112
GPS
1-9413-907-
12
18
1
5
10
W2
W3
A

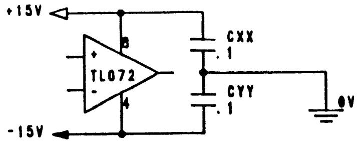
▨ SOLDER SIDE
■ COMPONENT SIDE

REFERENCE DESIGNATORS CONTROLS AND INDICATORS

RV9	MID -15 +15
RV10	MID 150 5K
RV11	PAN (EQ)
RV12	PRE-3 (EQ)
RV13	LEVEL
S1	RET/GP
S5	1-2
S6	3-4
S7	MIX (INPUT)
S9	PFL
S10	MIX (SEND)
S15	PRE-1 (EQ)


W1
W2
W3
R62 100K
R61 100K
R75 100K
S1
C
E
A
F
R72 100K
C39 47/16 NP
R64 100K
R63 100K
C36 22pF
R60 10K
R71 10K
C38 .15
IC10
TL072
C40 47/16 NP
R58 1.8K
R74 120
RV10A 5K, REV LOG
RV10B 5K, REV LOG
EQ MID FREQ
CW
S8
D
RV9 100K LIN
MID EQ
C37 .39 POLY
R73 120
TP3
R59 1.8K
R66 7.5K
TP10
RV11A 5K LIN
IC12A
C63 22pF
C69 47/16 NP
R68 4.7K
R108 2.74K, 1%
C66 47/16 NP
C41 47/16 NP
R65 100K
S9
R110 100K
R126 22K
R127 22K
S10
C67 47/16 NP
R69 4.7K
R109 2.74K, 1%
TP11
C64 22pF
R111 100K
RV12 500
C65 47/16 NP
R112 100K
RV11B 5K LIN
IC12B
C68 47/16 NP
R67 7.5K
S15
A, B
RV13 5K REV LOG
B
A
S5
S6
S7

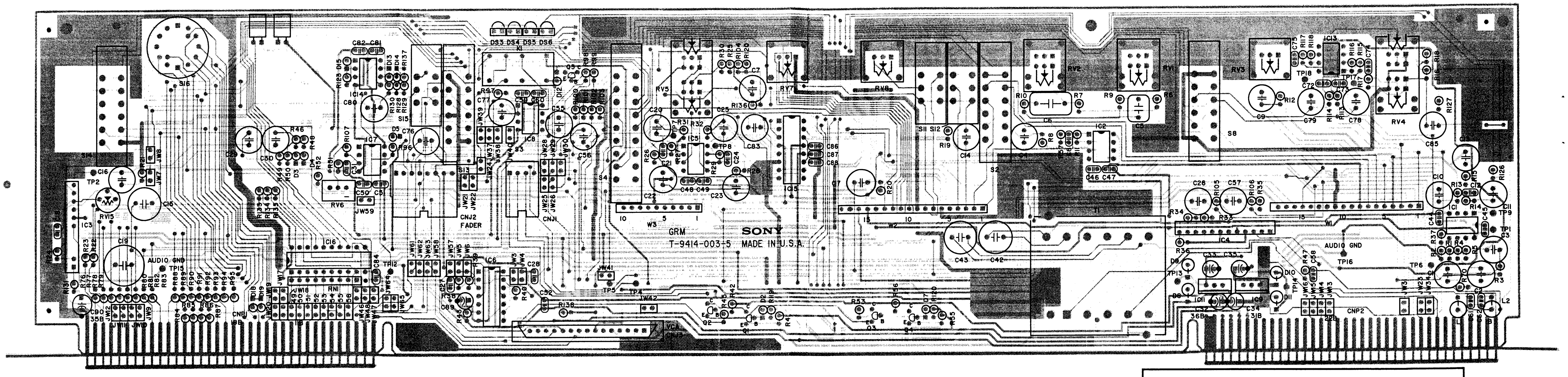
NOTES:
UNLESS OTHERWISE SPECIFIED:
1. ALL RESISTOR VALUES ARE IN OHMS, 5%, 1/6W.
2. ALL ELECTROLYTIC CAPACITOR VALUES ARE IN MICROFARADS/VOLTS,
ALL OTHER VALUES ARE IN MICROFARAD VALUES ONLY.
3. ALL DIODES ARE 1N914.


+15V
-15V
TL072
8
4
CXX
.1
CYY
.1
0V

TYPICAL DECOUPLING

IC	CYY	CXX
10	53	54
12	70	71

GRM BOARD (MXBK-2902)
Group Main Board

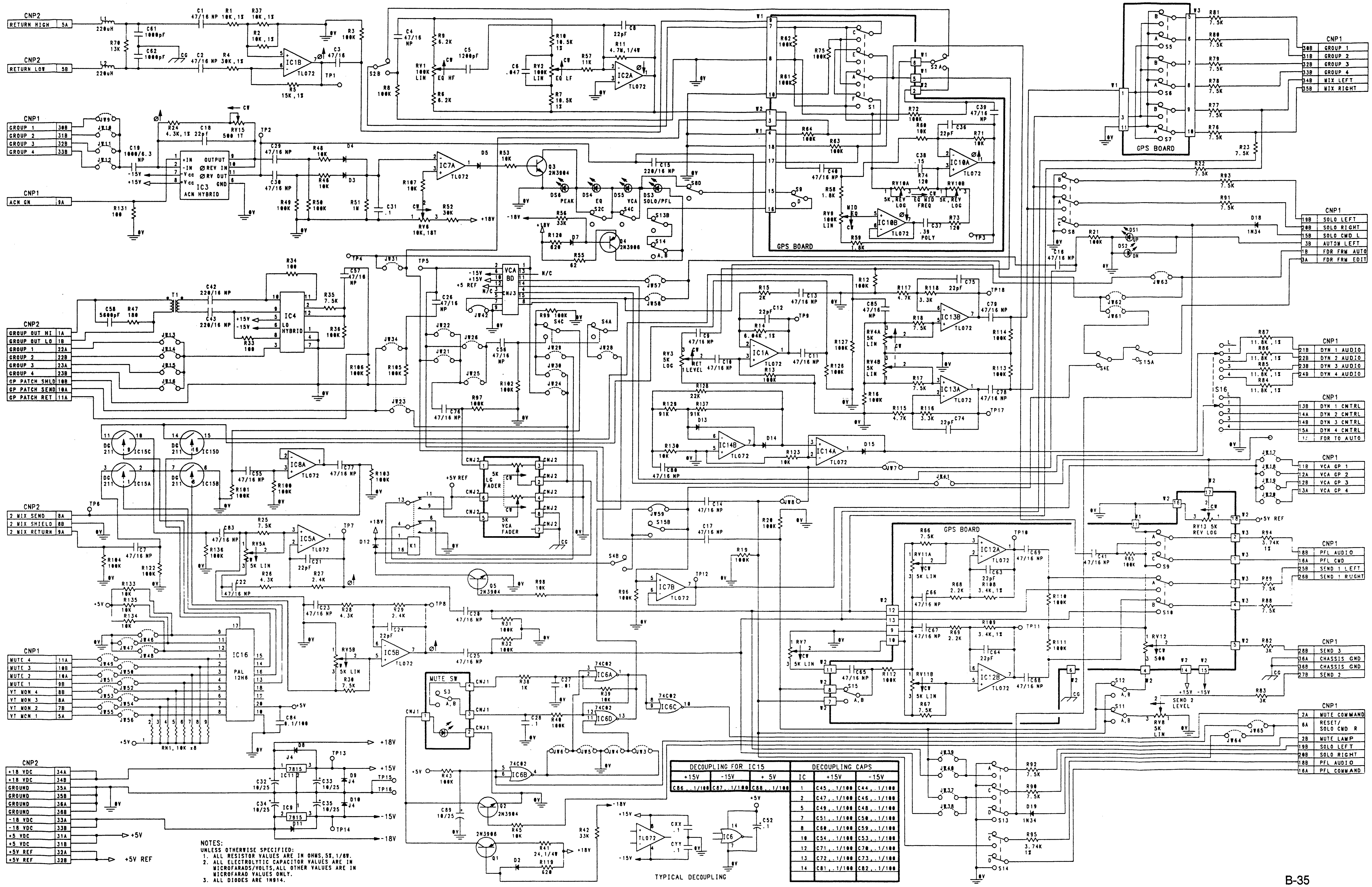

GRM
T-9414-003-5
SONY
MADE IN U.S.A.
FADER
AUDIO GND
CNJ1
CNJ2
CNP1
CNP2
K1
DS3 DS4 DS5 DS6
S16
RV1
RV2
RV3
RV4
RV5
RV6
RV7
RV8
RV15
S2
S3
S4
S8
S11 S12
S13
S14
S15
W1
W2
W3
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC13
IC14
IC15
IC16
TP1
TP2
TP6
TP9
TP12
TP13
TP15
TP16
TP18
L2
RN1

▨ SOLDER SIDE
■ COMPONENT SIDE

REFERENCE DESIGNATORS CONTROLS AND INDICATORS

DS1	(UP ARROW)
DS2	(DOWN ARROW)
DS3	PF/SOLO
DS4	EQ
DS5	VCA
DS6	PK
RV1	HF
RV2	LF
RV3	RETURN
RV4	PAN (INPUT)
RV5	PAN (MASTER ASSIGN)
RV7	PAN (SEND)
RV8	2 (SEND)
S3	(MUTE SWITCH, PANEL)
S4	VCA
S8	SOLO (INPUT)
S10	EQ
S11	2 PRE
S12	3 PRE
S13	SOLO (MASTER ASSIGN)
S14	PFL
S15	LOCAL
S16	DYNAMIC

GRM

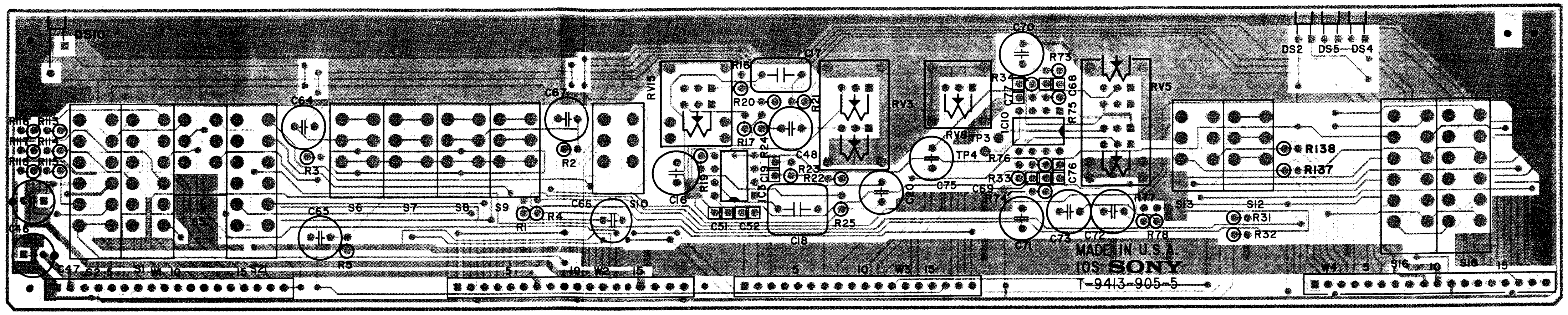

CNP2
RETURN HIGH 5A
RETURN LOW 5B
CNP1
GROUP 1 30B
GROUP 2 31B
GROUP 3 32B
GROUP 4 33B
ACN GN 9A
IC3 ACN HYBRID
IC4 LO HYBRID
GROUP OUT HI 1A
GROUP OUT LO 1B
GP PATCH SHLD 10B
GP PATCH SEND 10A
GP PATCH RET 11A
2 MIX SEND 8A
2 MIX SHIELD 8B
2 MIX RETURN 9A
MUTE 4 11A
MUTE 3 10B
MUTE 2 10A
MUTE 1 9B
VT MON 4 8B
VT MON 3 8A
VT MON 2 7B
VT MON 1 5A
IC16 PAL 12H6
+18 VDC 34A
+18 VDC 34B
GROUND 35B
GROUND 35A
GROUND 36A
GROUND 36B
-18 VDC 33A
-18 VDC 33B
+5 VDC 31A
+5 VDC 31B
+5V REF 32A
+5V REF 32B
GPS BOARD
VCA BD
LG FADER
VCA FADER
MUTE SW
EQ HF
EQ LF
EQ MID
PEAK
EQ
VCA
SOLO/PFL
GROUP 1 30B
GROUP 2 31B
GROUP 3 32B
GROUP 4 33B
MIX LEFT 34B
MIX RIGHT 35B
SOLO LEFT 19B
SOLO RIGHT 20B
SOLO CMD L 15B
AUTOM LEFT 3B
FDR FRM AUTO 1B
FDR FRM EDIT 3A
DYN 1 AUDIO 21B
DYN 2 AUDIO 22B
DYN 3 AUDIO 23B
DYN 4 AUDIO 24B
DYN 1 CNTRL 13B
DYN 2 CNTRL 14A
DYN 3 CNTRL 14B
DYN 4 CNTRL 15A
FDR TO AUTO
VCA GP 1 11B
VCA GP 2 12A
VCA GP 3 12B
VCA GP 4 13A
PFL AUDIO 18B
PFL CMD 16A
SEND 1 LEFT 25B
SEND 1 RIGHT 26B
SEND 3 28B
CHASSIS GND 36A
CHASSIS GND 36B
SEND 2 27B
MUTE COMMAND 2A
RESET/ SOLO CMD R 6A
MUTE LAMP 2B
SOLO LEFT 19B
SOLO RIGHT 20B
PFL AUDIO 18B
PFL COMMAND 16A
SEND 2 LEVEL
REV LOG
TYPICAL DECOUPLING

NOTES:
UNLESS OTHERWISE SPECIFIED:
1. ALL RESISTOR VALUES ARE IN OHMS, 5%, 1/6W.
2. ALL ELECTROLYTIC CAPACITOR VALUES ARE IN MICROFARADS/VOLTS, ALL OTHER VALUES ARE IN MICROFARAD VALUES ONLY.
3. ALL DIODES ARE 1N914.

DECOUPLING FOR IC15		
+15V	-15V	+ 5V
C86, .1/100	C87, .1/100	C88, .1/100

DECOUPLING CAPS		
IC	+15V	-15V
1	C45, .1/100	C44, .1/100
2	C47, .1/100	C46, .1/100
5	C49, .1/100	C48, .1/100
7	C51, .1/100	C50, .1/100
8	C60, .1/100	C59, .1/100
10	C54, .1/100	C53, .1/100
12	C71, .1/100	C70, .1/100
13	C72, .1/100	C73, .1/100
14	C81, .1/100	C82, .1/100

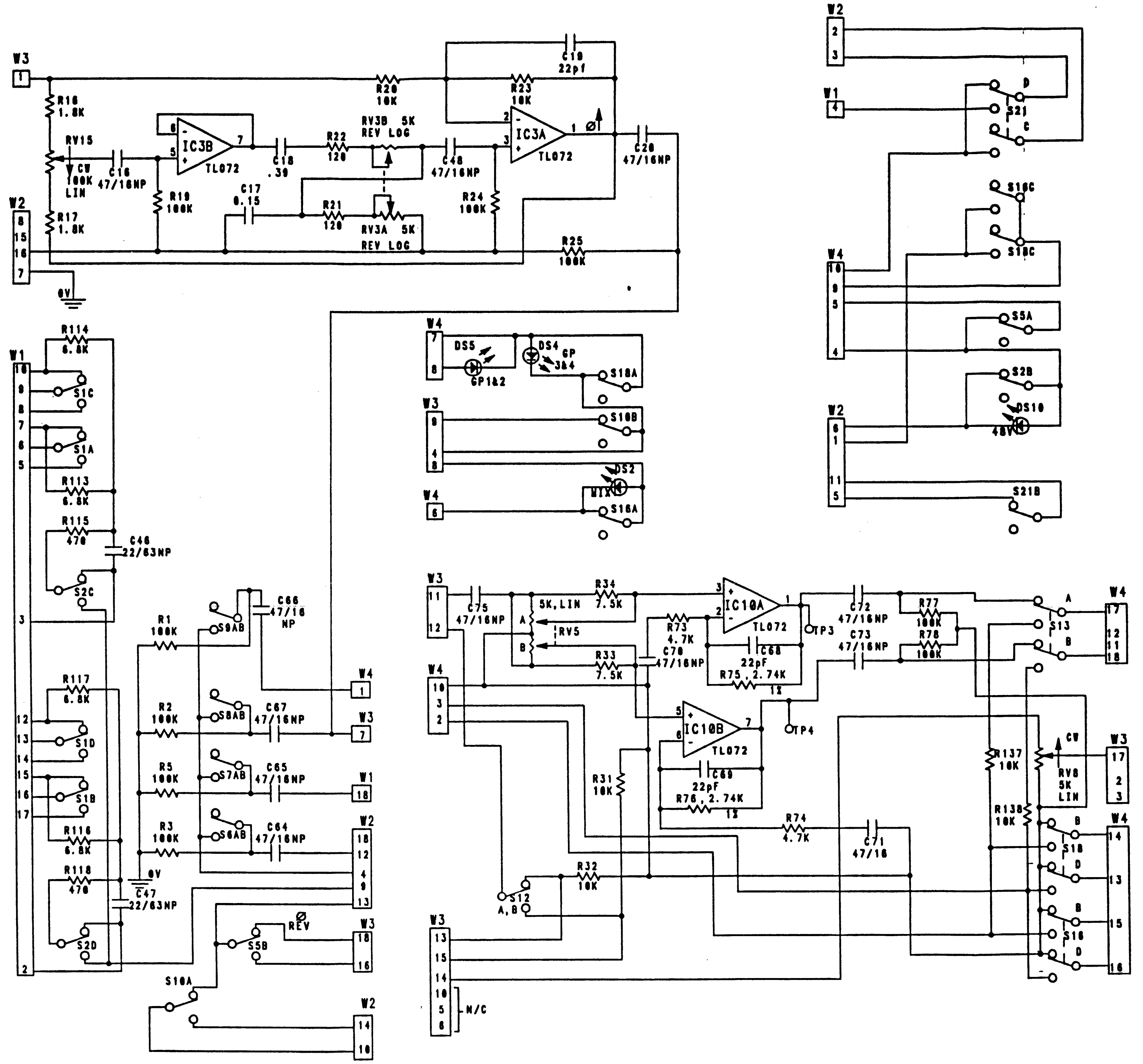
IOS BOARD (MXBK-2901/2901E)
I/O Sub Board


DS10
C64
C67
RV15
R16
C17
R20
R21
RV3
C70
R73
R34
IC10
C77
C68
R75
RV5
DS2
DS5
DS4
R3
R2
R17
R24
R18
C48
R23
R22
RV8
TP3
TP4
R76
R33
C69
R77
C76
C16
C75
C65
S6
S7
S8
S9
R1
R4
C66
S10
C51
C52
C18
R25
C71
C73
C72
R78
S13
S12
R31
R32
R138
R137
R5
C46
C47
S2
S1
S5
S21
W2
W3
W4
S16
S18
MADE IN U.S.A.
IOS SONY
T-9413-905-5

▨ SOLDER SIDE
■ COMPONENT SIDE

REFERENCE DESIGNATORS CONTROLS AND INDICATORS

DS2	MIX
DS4	3/4
DS5	1/2
RV3	MID 150 5K
RV5	PAN
RV8	PRE-3
RV15	MID -15 +15
S1	PAD
S2/DS10	PHAN
S5	Ø
S6	LINE
S7	MIC
S8	EQ
S9	CHAN
S10	/‾
S12	PRE-1
S13	MIX (SEND)
S16	MIX (MASTER ASSIGN)
S18	3-4
S21	PSL


W3
R16 1.8K
RV15
CW 100K LIN
C16 47/16NP
IC3B
TL072
C18 .39
R22 120
RV3B 5K REV LOG
R20 10K
R23 10K
C19 22pf
IC3A
TL072
C20 47/16NP
C48 47/16NP
R24 100K
C17 0.15
R21 120
RV3A 5K REV LOG
R19 100K
R17 1.8K
W2
R25 100K
0V
R114 6.8K
W1
S1C
S1A
R113 6.8K
R115 470
C46 22/63NP
S2C
R117 6.8K
S1D
S1B
R116 6.8K
R118 470
C47 22/63NP
S2D
R1 100K
S9AB
C66 47/16 NP
R2 100K
S8AB
C67 47/16NP
R5 100K
S7AB
C65 47/16NP
R3 100K
S6AB
C64 47/16NP
REV
S5B
S10A
W4
DS5
GP1&2
DS4
GP 3&4
S18A
S18B
DS2
MIX
S16A
W2
W1
S21
D
C
S19C
S18C
S5A
S2B
DS10
48V
S21B
C75 47/16NP
5K, LIN
RV5
R34 7.5K
R33 7.5K
R73 4.7K
C70 47/16NP
IC10A
TL072
C68 22pF
R75, 2.74K 1%
TP3
C72 47/16NP
C73 47/16NP
R77 100K
R78 100K
S13
A
B
IC10B
TL072
TP4
C69 22pF
R76, 2.74K 1%
R31 10K
R74 4.7K
C71 47/16
R32 10K
S12 A, B
R137 10K
R138 10K
RV8 5K LIN
CW
S18
S16
N/C

DECOUPLING CAPS		
IC	+15V	-15V
3	C51, .1	C52, .1

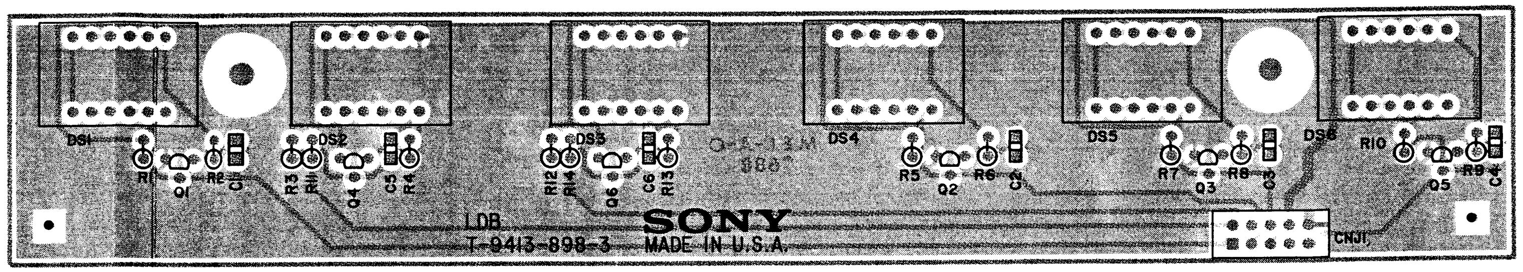
NOTES: (UNLESS OTHERWISE SPECIFIED)
1. RESISTANCE VALUES ARE IN OHMS, 1/6W, 5%.
2. ALL ELECTROLYTIC CAPACITOR VALUES ARE IN MICROFARADS/VOLTS, ALL OTHERS ARE IN MICROFARADS ONLY.

HIGHEST REFERENCE DESIGNATOR USED					
C79		DS10		IC10	
		R136	RV5	S21	W4

REFERENCE DESIGNATORS NOT USED					
C13	C37	C56			
D6	R4	RV10			

LDB

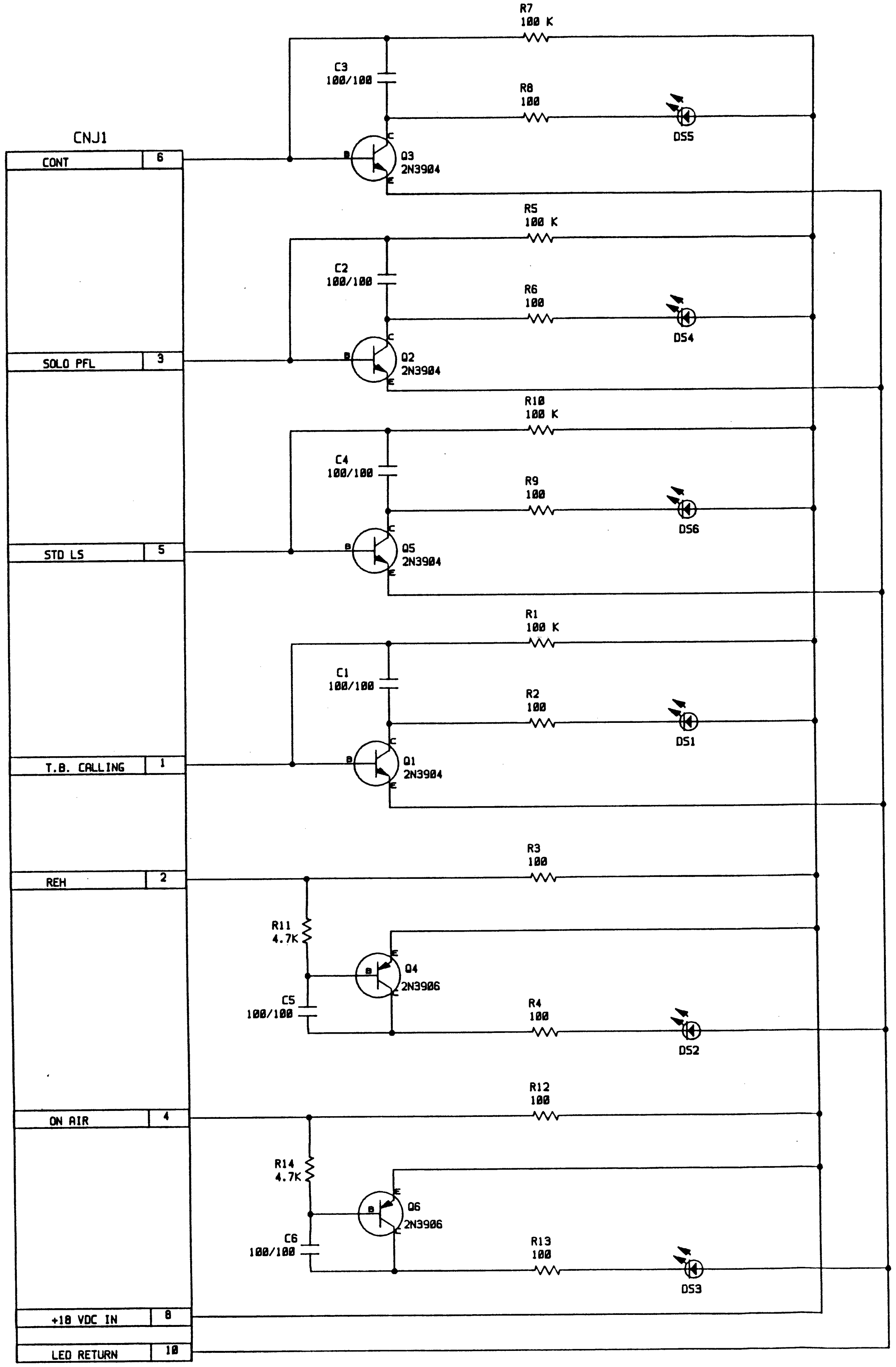
LDB BOARD (MXP-2916/2916P/2926/2926P/2936/2936P)
LED display Board


DS1
DS2
DS3
DS4
DS5
DS6
R1
Q1
R2
C1
R3
R11
Q4
C5
R4
R12
R14
Q6
C6
R13
R5
Q2
R6
C2
R7
Q3
R8
C3
R10
Q5
R9
C4
CN1
LDB
T-9413-898-3
SONY
MADE IN U.S.A.

▩ SOLDER SIDE

■ COMPONENT SIDE

LDB

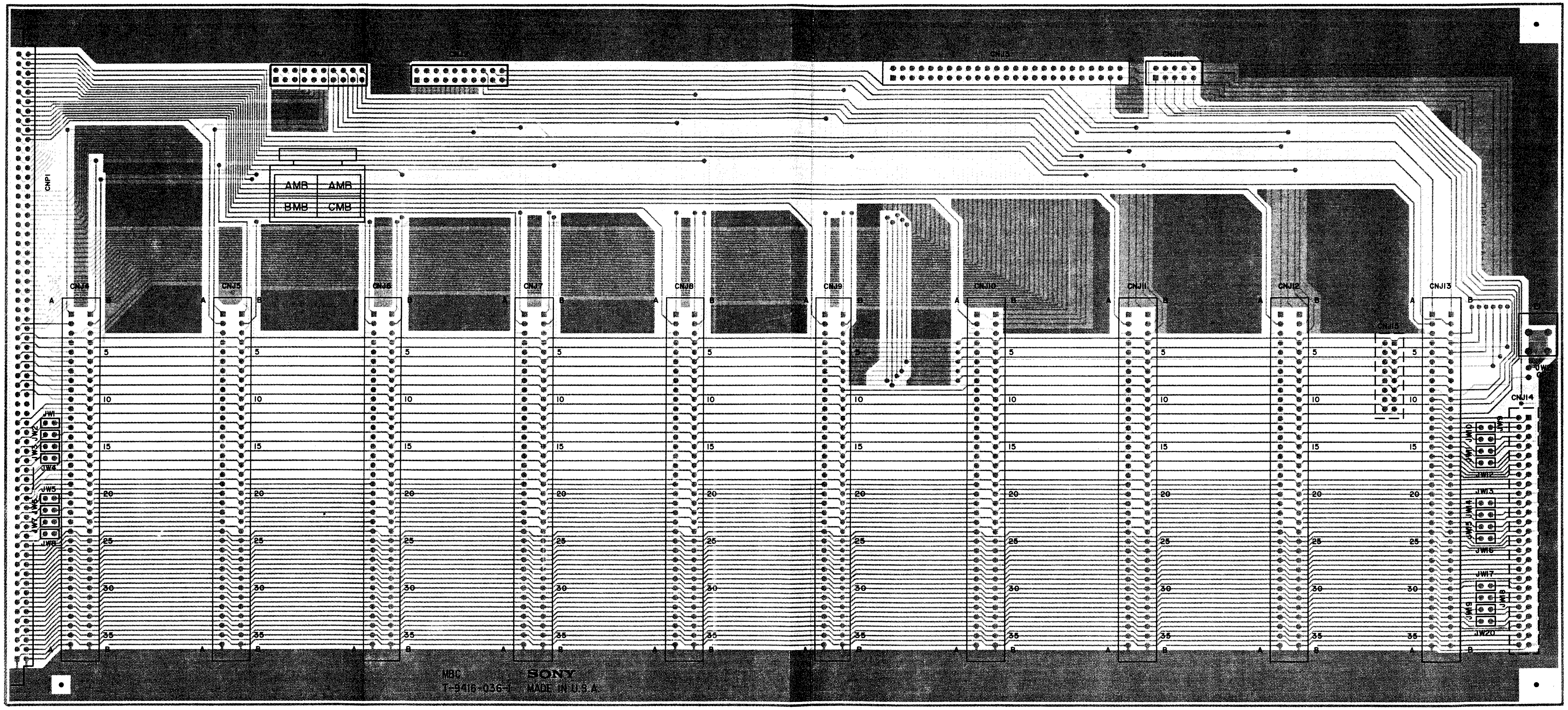

R7
100 K
C3
100/100
R8
100
DS5
CNJ1
CONT
6
Q3
2N3904
R5
100 K
C2
100/100
R6
100
DS4
SOLO PFL
3
Q2
2N3904
R10
100 K
C4
100/100
R9
100
DS6
STD LS
5
Q5
2N3904
R1
100 K
C1
100/100
R2
100
DS1
T.B. CALLING
1
Q1
2N3904
REH
2
R3
100
R11
4.7K
Q4
2N3906
C5
100/100
R4
100
DS2
ON AIR
4
R12
100
R14
4.7K
Q6
2N3906
C6
100/100
R13
100
DS3
+18 VDC IN
8
LED RETURN
10
B
C
E

NOTES: (UNLESS OTHERWISE SPECIFIED)

1) ALL RESISTANCE VALUES ARE IN OHMS, 1/6W, 5%.
2) ALL CAPACITANCE VALUES ARE IN PICOFARADS/VOLTS.

HIGHEST REFERENCE DESIGNATORS USED					
C6	CNJ1	DS6	Q6	R14	

MBC BOARD (MXP-2916/2916P/2926/2926P/2936/2936P)
Lower Right Mother Board

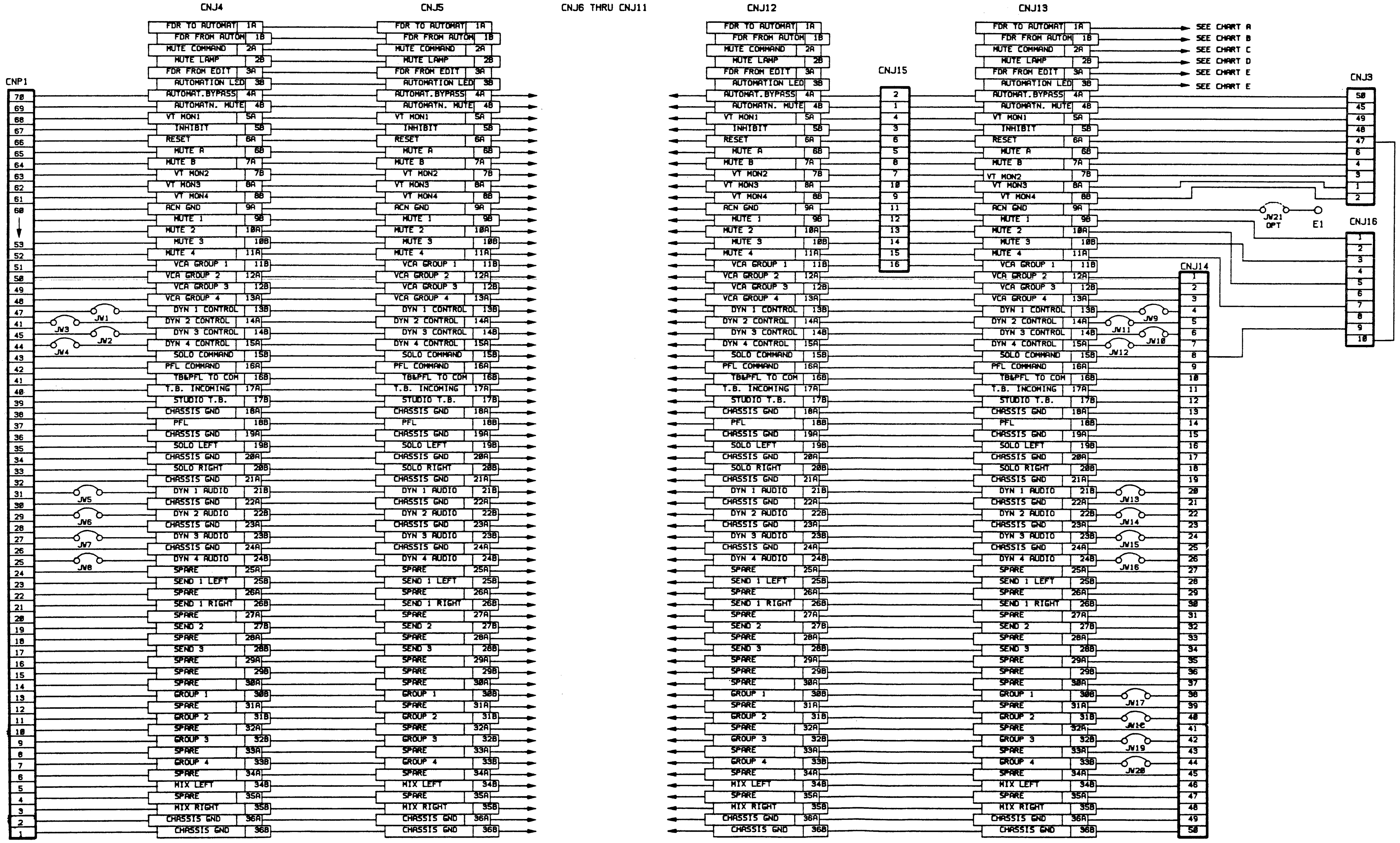

CNP1
AMB
AMB
BMB
CMB
CNJ4
CNJ5
CNJ6
CNJ7
CNJ8
CNJ9
CNJ10
CNJ11
CNJ12
CNJ13
CNJ14
A
B
5
10
15
20
25
30
35
JW1
JW2
JW3
JW4
JW5
JW6
JW7
JW8
JW9
JW10
JW11
JW12
JW13
JW14
JW15
JW16
JW17
JW18
JW19
JW20
MBC
1-9416-036-1
SONY
MADE IN U.S.A.

▨ SOLDER SIDE
■ COMPONENT SIDE

A		B		C		D		E				F		G		H		I	
PIN # 1A OF CNJ#	TO CNJ1 PIN #	PIN # 1B OF CNJ#	TO CNJ2 PIN #	PIN # 2A OF CNJ#	TO CNP1 PIN #	PIN # 2B OF CNJ#	TO CNP1 PIN #	PIN #3A OF J#	TO CNJ3 PIN #	PIN # 3B OF CNJ#	TO CNJ3 PIN #	CNP1	TO CNJ1 PIN #	CNP1	TO CNJ2 PIN #	CNP1	TO CNJ3 PIN #	CNP1	TO CNJ3 PIN #
4	11	4	11	4	71	4	121	4	25	4	28	109	1	101	1	91	5	90	8
5	12	5	12	5	112	5	122	5	27	5	30	111	2	100	2	89	7	88	10
6	13	6	13	6	113	6	123	6	29	6	32	110	3	99	3	87	9	86	12
7	14	7	14	7	114	7	124	7	31	7	34	108	4	98	4	85	11	84	14
8	15	8	15	8	115	8	125	8	33	8	36	107	5	97	5	83	13	82	16
9	16	9	16	9	116	9	126	9	35	9	38	106	6	96	6	81	15	80	18
10	17	10	17	10	117	10	127	10	37	10	40	105	7	95	7	79	17	78	20
11	18	11	18	11	118	11	128	11	39	11	42	104	8	94	8	77	19	76	22
12	19	12	19	12	119	12	129	12	41	12	44	103	9	93	9	75	21	74	24
13	20	13	20	13	120	13	130	13	43	13	46	102	10	92	10	73	23	72	26

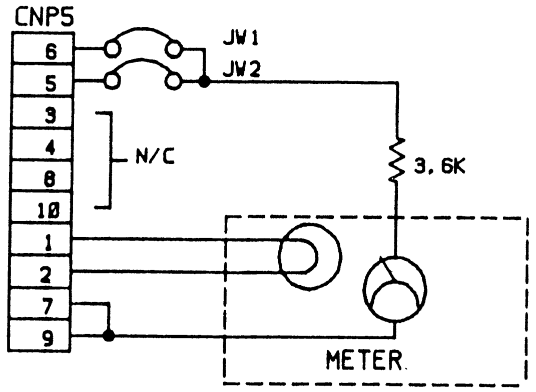
NOTES:

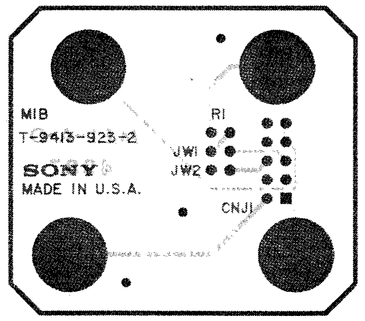
1. CNP1 IS A 130 PIN CONNECTOR.CHARTS F,G,H AND I SHOW CONNECTIONS OF ITS REMAINING PINS.
2. JV21 IS A .10 INCH INSULATED WIRE JUMPER


CNP1
CNJ4
CNJ5
CNJ6 THRU CNJ11
CNJ12
CNJ13
CNJ15
CNJ3
CNJ16
CNJ14
FDR TO AUTOMAT 1A
FDR FROM AUTOM 1B
MUTE COMMAND 2A
MUTE LAMP 2B
FDR FROM EDIT 3A
AUTOMATION LED 3B
AUTOMAT.BYPASS 4A
AUTOMATN. MUTE 4B
VT MON1 5A
INHIBIT 5B
RESET 6A
MUTE A 6B
MUTE B 7A
VT MON2 7B
VT MON3 8A
VT MON4 8B
ACN GND 9A
MUTE 1 9B
MUTE 2 10A
MUTE 3 10B
MUTE 4 11A
VCA GROUP 1 11B
VCA GROUP 2 12A
VCA GROUP 3 12B
VCA GROUP 4 13A
DYN 1 CONTROL 13B
DYN 2 CONTROL 14A
DYN 3 CONTROL 14B
DYN 4 CONTROL 15A
SOLO COMMAND 15B
PFL COMMAND 16A
TB&PFL TO COM 16B
T.B. INCOMING 17A
STUDIO T.B. 17B
CHASSIS GND 18A
PFL 18B
CHASSIS GND 19A
SOLO LEFT 19B
CHASSIS GND 20A
SOLO RIGHT 20B
CHASSIS GND 21A
DYN 1 AUDIO 21B
CHASSIS GND 22A
DYN 2 AUDIO 22B
CHASSIS GND 23A
DYN 3 AUDIO 23B
CHASSIS GND 24A
DYN 4 AUDIO 24B
SPARE 25A
SEND 1 LEFT 25B
SPARE 26A
SEND 1 RIGHT 26B
SPARE 27A
SEND 2 27B
SPARE 28A
SEND 3 28B
SPARE 29A
SPARE 29B
SPARE 30A
GROUP 1 30B
SPARE 31A
GROUP 2 31B
SPARE 32A
GROUP 3 32B
SPARE 33A
GROUP 4 33B
SPARE 34A
MIX LEFT 34B
SPARE 35A
MIX RIGHT 35B
CHASSIS GND 36A
CHASSIS GND 36B
SEE CHART A
SEE CHART B
SEE CHART C
SEE CHART D
SEE CHART E
SEE CHART E
JV1
JV2
JV3
JV4
JV5
JV6
JV7
JV8
JV9
JV10
JV11
JV12
JV13
JV14
JV15
JV16
JV17
JV18
JV19
JV20
JV21 OPT
E1

MIB

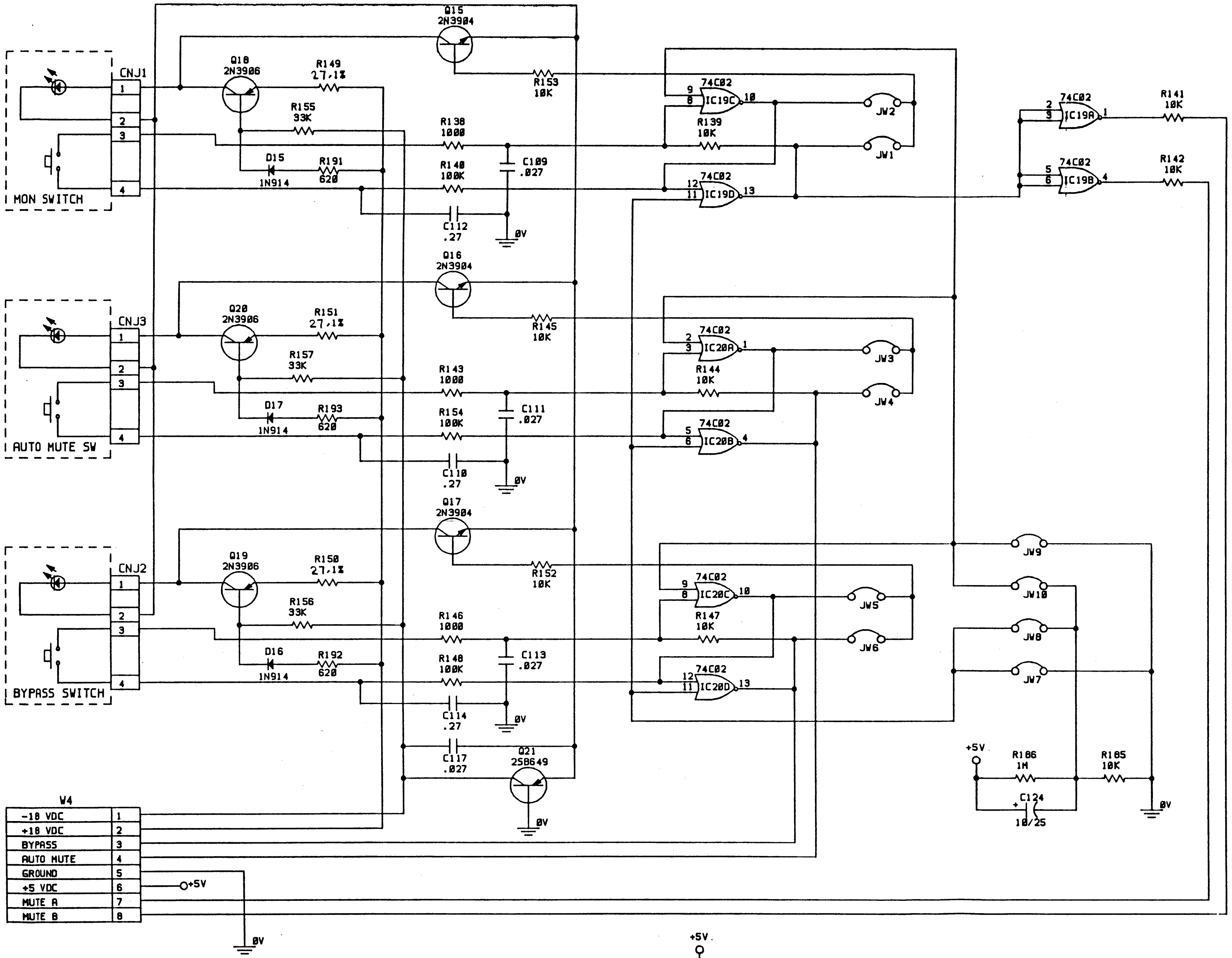
MIB BOARD (MXP-2916/2926/2936)
Meter IF Board

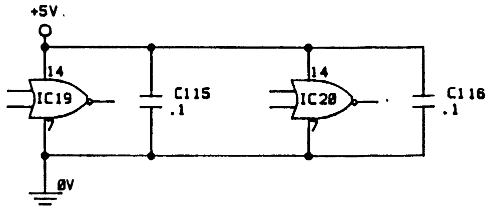

CNP5
6
5
3
4
8
10
1
2
7
9
JW1
JW2
N/C
3, 6K
METER

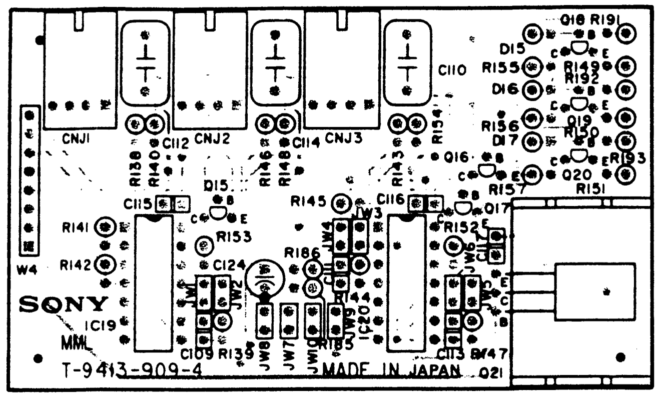

MIB
T-9413-923-2
SONY
MADE IN U.S.A.
R1
JW1
JW2
CNJ1

▨ SOLDER SIDE
■ COMPONENT SIDE

MML BOARD (MXBK-2906)
Monitor Logic Board


CNJ1
MON SWITCH
CNJ3
AUTO MUTE SW
CNJ2
BYPASS SWITCH
Q15 2N3904
Q16 2N3904
Q17 2N3904
Q18 2N3906
Q19 2N3906
Q20 2N3906
Q21 2SB649
R149 27.1%
R150 27.1%
R151 27.1%
R155 33K
R156 33K
R157 33K
D15 1N914
D16 1N914
D17 1N914
R191 620
R192 620
R193 620
R138 1000
R143 1000
R146 1000
R140 100K
R154 100K
R148 100K
C109 .027
C111 .027
C113 .027
C112 .27
C110 .27
C114 .27
C117 .027
R153 10K
R145 10K
R152 10K
R139 10K
R144 10K
R147 10K
74C02 IC19C
74C02 IC19D
74C02 IC20A
74C02 IC20B
74C02 IC20C
74C02 IC20D
74C02 IC19A
74C02 IC19B
R141 10K
R142 10K
JW1
JW2
JW3
JW4
JW5
JW6
JW7
JW8
JW9
JW10
+5V
R186 1M
R185 10K
C124 10/25
0V
W4
-10 VDC
+10 VDC
BYPASS
AUTO MUTE
GROUND
+5 VDC
MUTE A
MUTE B


+5V
IC19
IC20
14
7
C115 .1
C116 .1
0V


CNJ1
CNJ2
CNJ3
W4
SONY
MML
IC19
T-9413-909-4
MADE IN JAPAN
Q18
Q19
Q20
Q21
Q16
Q17
R191
R155
R149
R192
R156
R150
R193
R157
R151
R141
R142
R145
R153
R186
C110
C112
C114
C115
C116
C124
C109
R139
D15
D16
D17

- SOLDER SIDE
- COMPONENT SIDE

HIGHEST REFERENCE DESIGNATORS USED					
C124	D17	IC20	CNJ3	JW10	Q21
R193	W4				

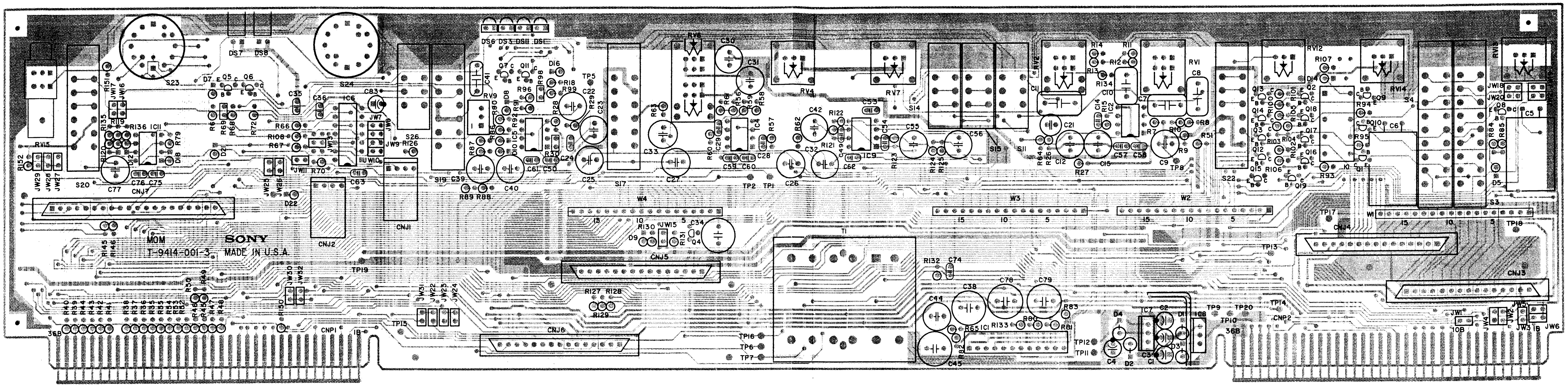
REFERENCE DESIGNATORS NOT USED		
C1 - C108	C118 - C123	D1 - D14
IC1 - IC18	Q1 - Q14	R1 - R137
R158 - R184	R187 - R190	W1 - W3

NOTES: (UNLESS OTHERWISE SPECIFIED)

1. RESISTANCE VALUES ARE IN OHMS, 1/6W, 5%.
2. ALL ELECTROLYTIC CAPACITOR VALUES ARE IN MICROFARADS/VOLTS. ALL OTHERS ARE IN MICROFARADS ONLY.
3. Q21 IS MOUNTED ON A HEATSINK.

MOM

MOM BOARD (MXBK-2901/2901E)
Monitor Logic Board

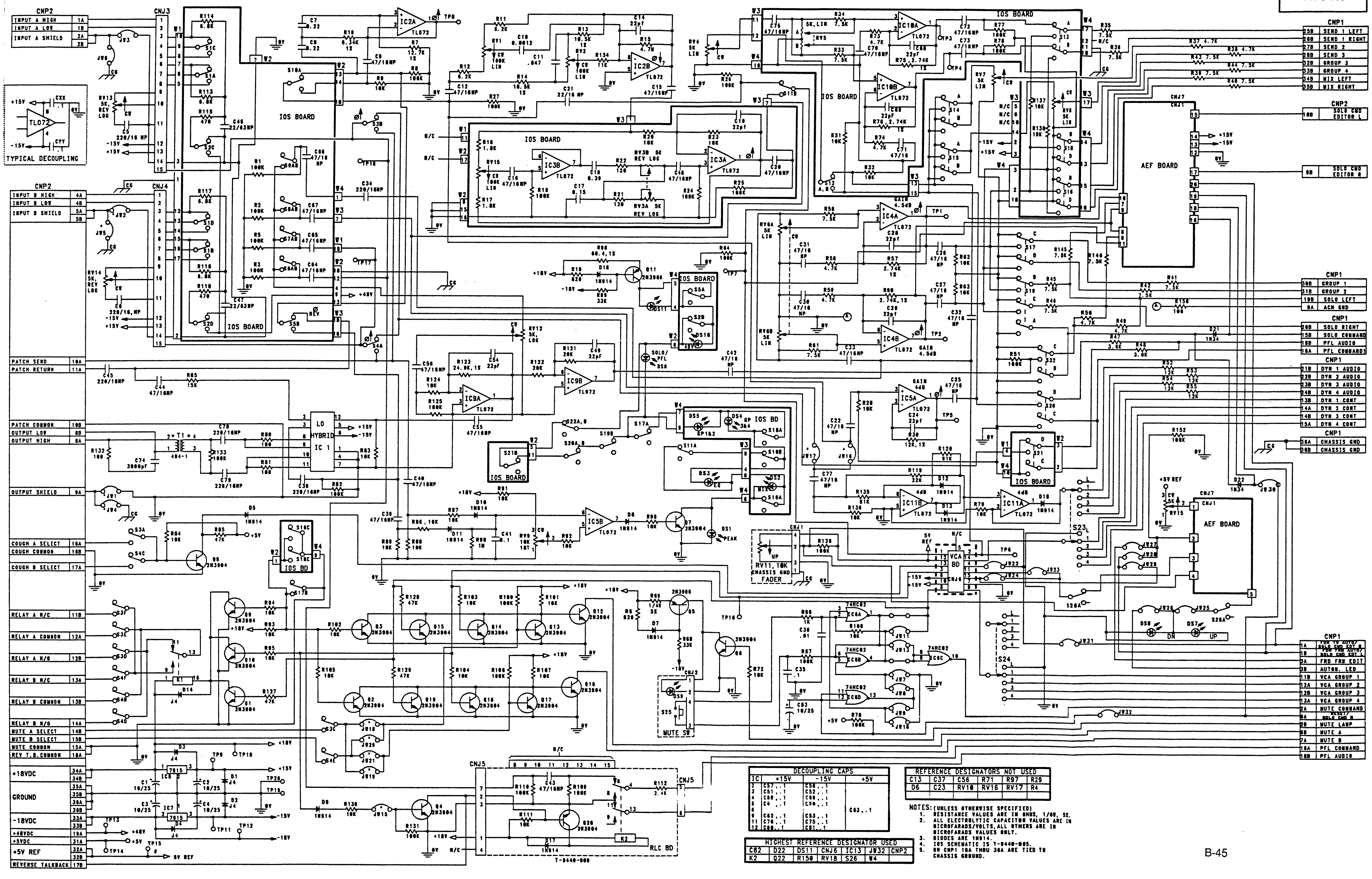


▨ SOLDER SIDE
■ COMPONENT SIDE

REFERENCE DESIGNATORS
CONTROLS AND INDICATORS

DS1	PK	RV14	(INPUT B LEVEL CONTROL)
DS3	EQ	RV15	VO
DS6	PF/SOLO		
DS7	(DOWN ARROW)		
DS8	(UP ARROW)	S3	MIC
DS9/S25	(MUTE SWITCH, CONTROL PANEL)	S4	LINE
		S11	EQ
DS11	Ø	S14	PRE-2
		S15	PRE-3
RV1	HF	S17	1-2
RV2	LF	S19	SOLO
RV4	PAN (SEND)	S20	PFL
RV6	PAN (MASTER ASSIGN)	S22	SOLO (INPUT)
RV7	PRE-2 (LEVEL)	S23	DYNAMIC
RV12	(OUTPUT LEVEL CONTROL)	S24	VCA GP
RV13	(INPUT A LEVEL CONTROL)	S26	LOCAL

MOM


CNP2
INPUT A HIGH 1A
INPUT A LOW 1B
INPUT A SHIELD 2A 2B
TYPICAL DECOUPLING
TL072
INPUT B HIGH 4A
INPUT B LOW 4B
INPUT B SHIELD 5A 5B
PATCH SEND 10A
PATCH RETURN 11A
PATCH COMMON 10B
OUTPUT LOW 8B
OUTPUT HIGH 8A
OUTPUT SHIELD 9A
COUGH A SELECT 16A
COUGH COMMON 16B
COUGH B SELECT 17A
RELAY A N/C 11B
RELAY A COMMON 12A
RELAY A N/O 12B
RELAY B N/C 13A
RELAY B COMMON 13B
RELAY B N/O 14A
MUTE A SELECT 14B
MUTE B SELECT 15B
MUTE COMMON 15A
REV T.B.COMMON 18A
+18VDC 34A 34B
GROUND 35A 35B 36A 36B
-18VDC 33A 33B
+48VDC 19A
+5VDC 31A
+5V REF 32A 32B
REVERSE TALKBACK 17B
CNJ3
CNJ4
CNJ5
IOS BOARD
IOS BD
LO HYBRID IC 1
AEF BOARD
VCA BD
RLC BD
MUTE SW
FADER
RV11, 10K CHASSIS GND
T-9440-000
CNP1
25B SEND 1 LEFT
26B SEND 1 RIGHT
27B SEND 2
28B SEND 3
32B GROUP 3
33B GROUP 4
34B MIX LEFT
35B MIX RIGHT
CNP2
18B SOLO CMD EDITOR L
9B SOLO CMD EDITOR R
CNP1
30B GROUP 1
31B GROUP 2
19B SOLO LEFT
9A ACN GND
CNP1
20B SOLO RIGHT
15B SOLO COMMAND
18B PFL AUDIO
16A PFL COMMAND1
CNP1
21B DYN 1 AUDIO
22B DYN 2 AUDIO
23B DYN 3 AUDIO
24B DYN 4 AUDIO
13B DYN 1 CONT
14A DYN 2 CONT
14B DYN 3 CONT
15A DYN 4 CONT
CNP1
36A CHASSIS GND
36B CHASSIS GND
CNP1
1A FDR TO AUTO/ SOLO CMD EDT R
1B FDR FRM AUTO/ SOLO CMD EDT L
3A FRD FRM EDIT
3B AUTOM. LED
11B VCA GROUP 1
12A VCA GROUP 2
12B VCA GROUP 3
13A VCA GROUP 4
2A MUTE COMMAND
8A RESET/ SOLO CMD R
2B MUTE LAMP
8B MUTE A
7A MUTE B
16A PFL COMMAND
18B PFL AUDIO

DECOUPLING CAPS			
IC	+15V	-15V	+5V
2	C57,.1	C58,.1	
3	C51,.1	C52,.1	
4	C59,.1	C60,.1	
5	C6 ,.1	C50,.1	
6			C83,.1
9	C62,.1	C53,.1	
11	C76,.1	C75,.1	
12	C80,.1	C81,.1	

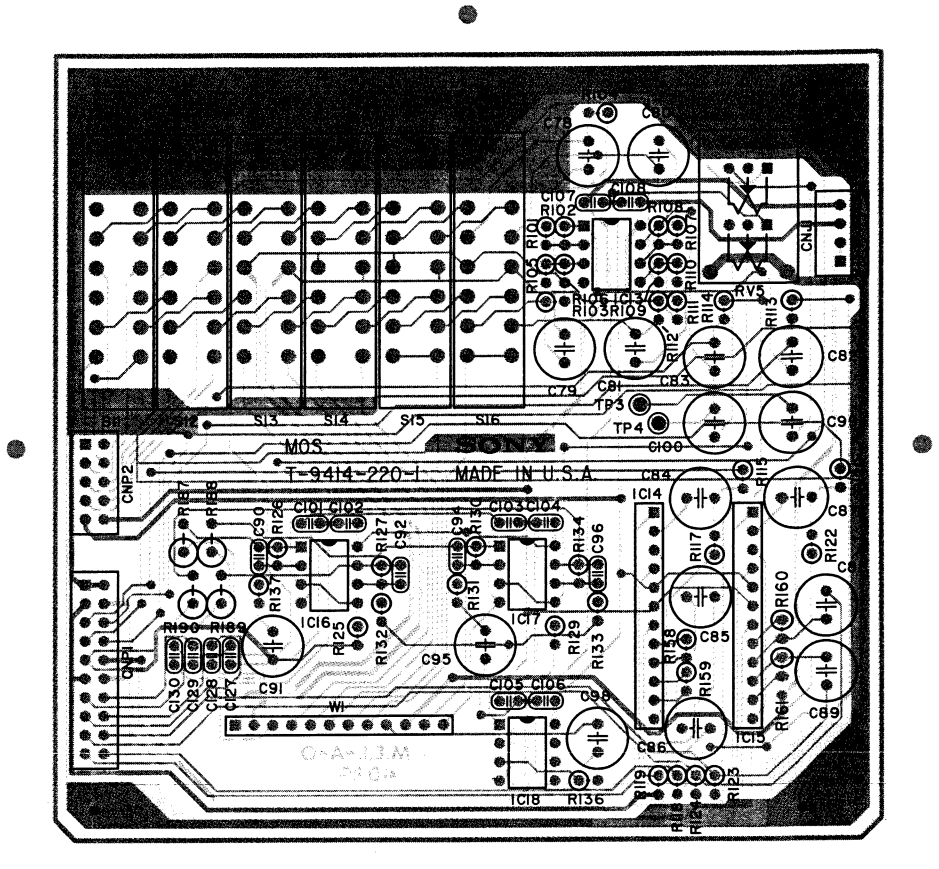
REFERENCE DESIGNATORS NOT USED					
C13	C37	C56	R71	R97	R29
D6	C23	RV10	RV16	RV17	R4

HIGHEST REFERENCE DESIGNATOR USED						
C82	D22	DS11	CNJ6	IC13	JW32	CNP2
K2	Q22	R150	RV18	S26	W4	

NOTES: (UNLESS OTHERWISE SPECIFIED)

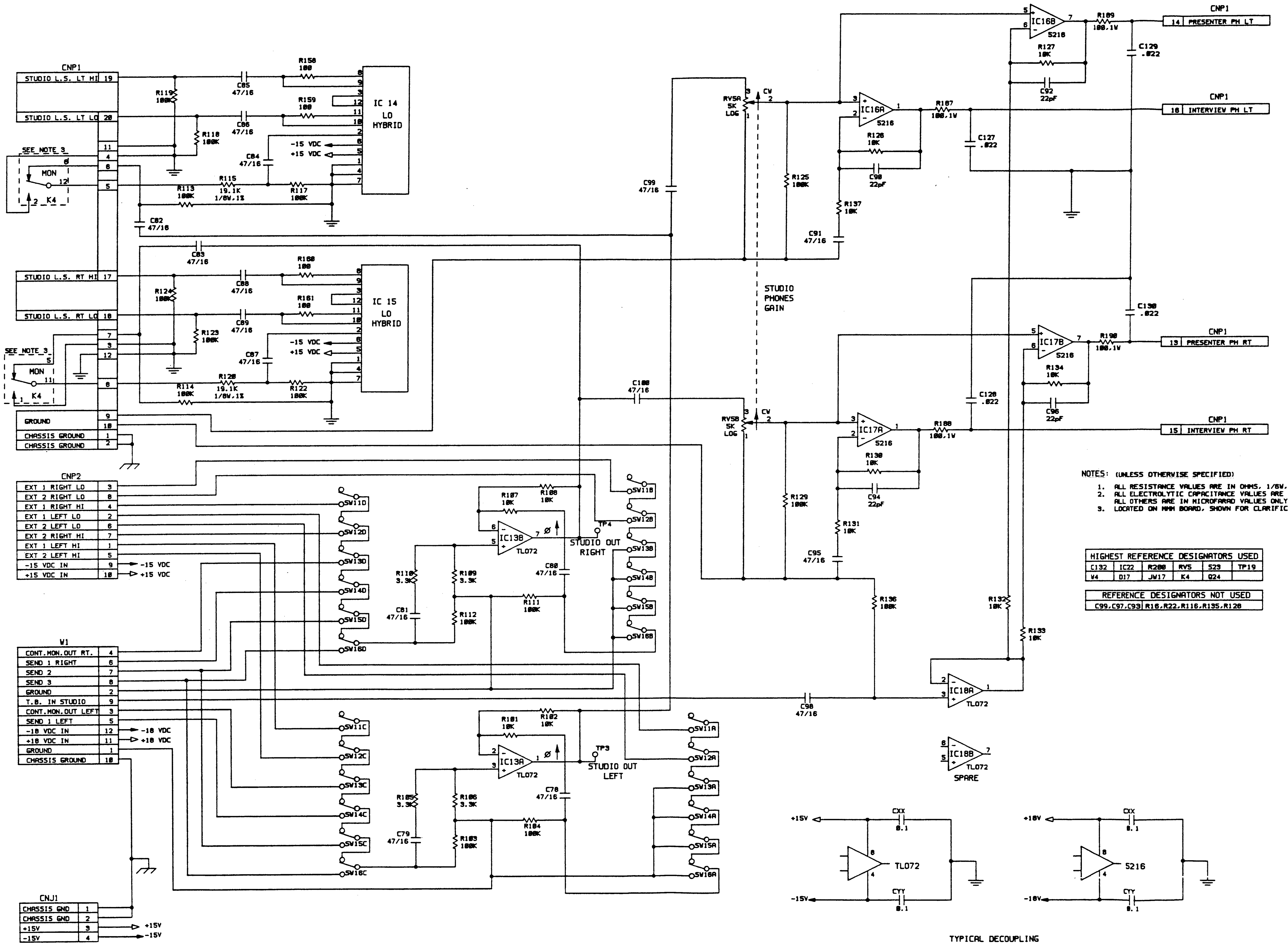
1. RESISTANCE VALUES ARE IN OHMS, 1/4W, 5%.
2. ALL ELECTROLYTIC CAPACITOR VALUES ARE IN MICROFARADS/VOLTS, ALL OTHERS ARE IN MICROFARADS VALUES ONLY.
3. DIODES ARE 1N914.
4. IOS SCHEMATIC IS T-9440-005.
5. ON CNP1 10A THRU 36A ARE TIED TO CHASSIS GROUND.

MOS BOARD (MXBK-2906)
Monitor Sub Board


S13
S14
S15
S16
MOS
T-9414-220-1
MADE IN U.S.A.
SONY
CNP2
CNP1
CNJ
RV5
TP3
TP4
IC13
IC14
IC15
IC16
IC17
IC18
W1
C79
C81
C83
C84
C85
C86
C87
C89
C90
C91
C92
C95
C96
C98
C100
R113
R115
R117
R122
R136
R159
R160

▨ SOLDER SIDE
■ COMPONENT SIDE

REFERENCE DESIGNATORS CONTROLS AND INDICATORS	
RV5	🎧
S11	EXT
S12	EXT
S13	SEL
S14	S1
S15	S2
S16	S3


CNP1
STUDIO L.S. LT HI 19
STUDIO L.S. LT LO 20
11
4
6
5
SEE NOTE 3
MON
K4
STUDIO L.S. RT HI 17
STUDIO L.S. RT LO 18
7
3
12
8
GROUND 9 10
CHASSIS GROUND 1
CHASSIS GROUND 2
R119 100K
R118 100K
C85 47/16
C86 47/16
R158 100
R159 100
IC 14 LO HYBRID
-15 VDC
+15 VDC
C84 47/16
R113 100K
R115 19.1K 1/8W,1%
R117 100K
C82 47/16
C83 47/16
R124 100K
R123 100K
C88 47/16
C89 47/16
R160 100
R161 100
IC 15 LO HYBRID
C87 47/16
R114 100K
R120 19.1K 1/8W,1%
R122 100K
CNP2
EXT 1 RIGHT LO 3
EXT 2 RIGHT LO 8
EXT 1 RIGHT HI 4
EXT 1 LEFT LO 2
EXT 2 LEFT LO 6
EXT 2 RIGHT HI 7
EXT 1 LEFT HI 1
EXT 2 LEFT HI 5
-15 VDC IN 9
+15 VDC IN 10
W1
CONT.MON.OUT RT. 4
SEND 1 RIGHT 6
SEND 2 7
SEND 3 8
GROUND 2
T.B. IN STUDIO 9
CONT.MON.OUT LEFT 3
SEND 1 LEFT 5
-18 VDC IN 12
+18 VDC IN 11
GROUND 1
CHASSIS GROUND 10
-18 VDC
+18 VDC
CNJ1
CHASSIS GND 1
CHASSIS GND 2
+15V 3
-15V 4
SW11D SW12D SW13D SW14D SW15D SW16D
SW11C SW12C SW13C SW14C SW15C SW16C
SW11B SW12B SW13B SW14B SW15B SW16B
SW11A SW12A SW13A SW14A SW15A SW16A
R107 10K
R108 10K
IC13B TL072
TP4
STUDIO OUT RIGHT
R110 3.3K
R109 3.3K
C80 47/16
C81 47/16
R111 100K
R112 100K
R101 10K
R102 10K
IC13A TL072
TP3
STUDIO OUT LEFT
R105 3.3K
R106 3.3K
C78 47/16
C79 47/16
R104 100K
R103 100K
C99 47/16
RV5A 5K LOG
CW
R125 100K
IC16A 5216
R126 10K
C90 22pF
R137 10K
C91 47/16
R107 100,1W
C127 .022
IC16B 5216
R127 10K
C92 22pF
R109 100,1W
C129 .022
CNP1 14 PRESENTER PH LT
CNP1 16 INTERVIEW PH LT
STUDIO PHONES GAIN
C100 47/16
RV5B 5K LOG
R129 100K
IC17A 5216
R130 10K
C94 22pF
R131 10K
C95 47/16
R188 100,1W
C128 .022
IC17B 5216
R134 10K
C96 22pF
R190 100,1W
C130 .022
CNP1 13 PRESENTER PH RT
CNP1 15 INTERVIEW PH RT
R136 100K
R132 10K
R133 10K
C98 47/16
IC18A TL072
IC18B TL072
SPARE
+15V
-15V
CXX 0.1
CYY 0.1
TL072
+18V
-18V
5216

TYPICAL DECOUPLING

NOTES: (UNLESS OTHERWISE SPECIFIED)

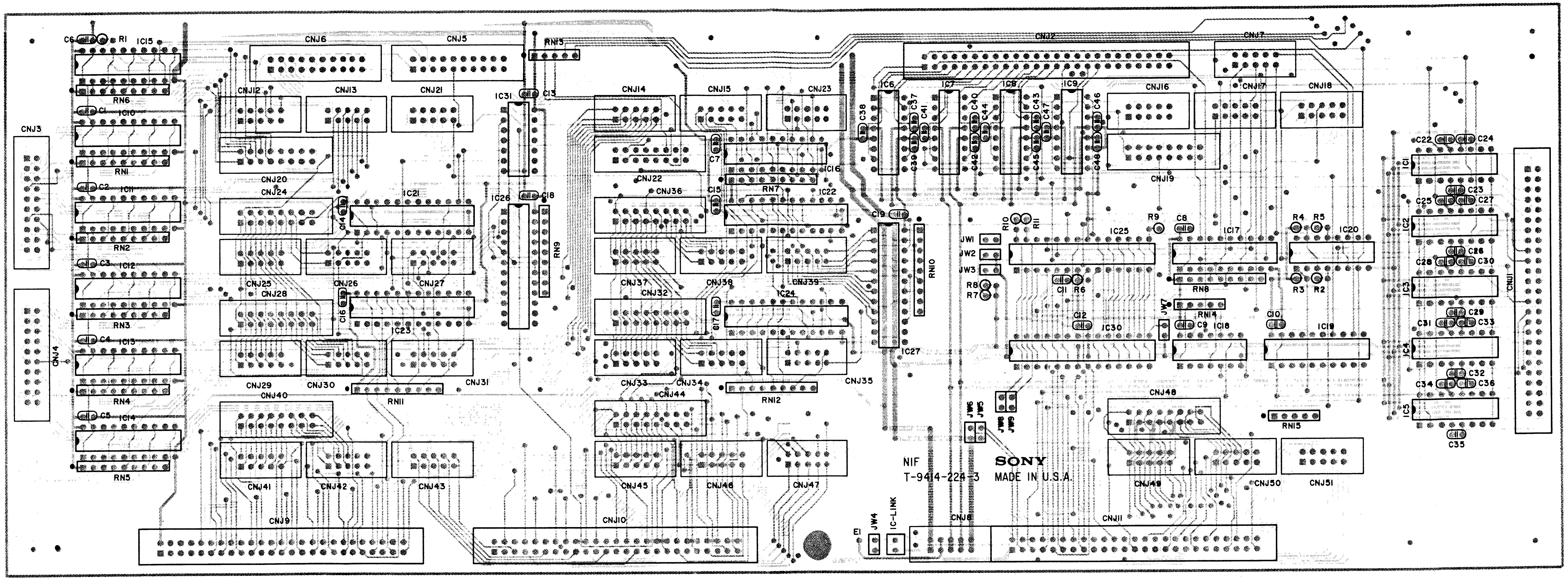
1. ALL RESISTANCE VALUES ARE IN OHMS, 1/8W, 5%.
2. ALL ELECTROLYTIC CAPACITANCE VALUES ARE IN MICROFARADS/VOLTS.
   ALL OTHERS ARE IN MICROFARAD VALUES ONLY.
3. LOCATED ON MMM BOARD, SHOWN FOR CLARIFICATION ONLY.

HIGHEST REFERENCE DESIGNATORS USED					
C132	IC22	R200	RV5	S23	TP19
V4	D17	JW17	K4	024	

REFERENCE DESIGNATORS NOT USED	
C99,C97,C93	R16,R22,R116,R135,R128

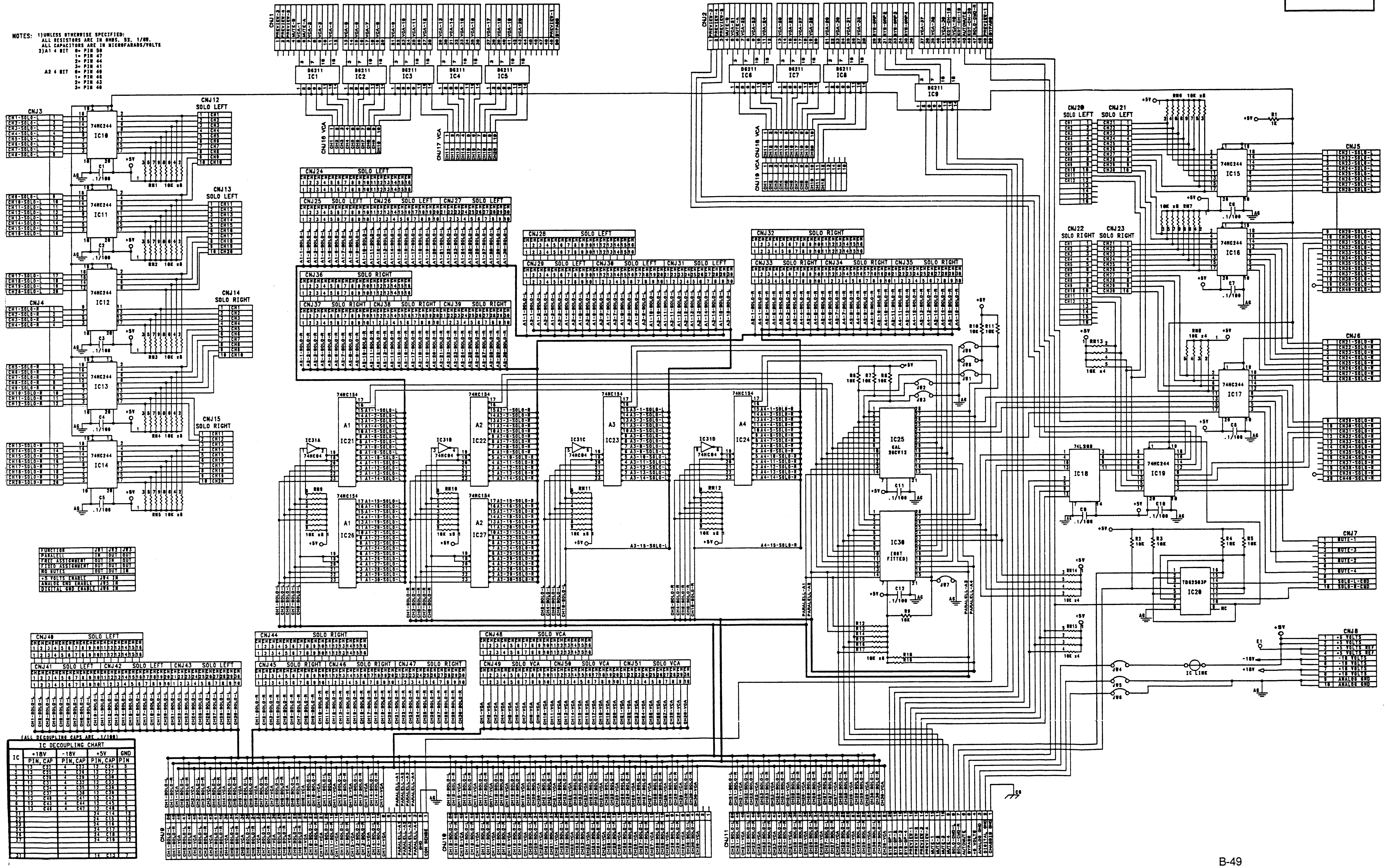
DECOUPLING CAPACITORS				
IC	13	16	17	18
CXX	C100	C102	C104	C106
CYY	C107	C101	C103	C105

NIF


NIF
T-9414-224-3
SONY
MADE IN U.S.A.
CNJ2
CNJ3
CNJ4
CNJ5
CNJ6
CNJ7
CNJ8
CNJ9
CNJ10
CNJ11
CNJ12
CNJ13
CNJ14
CNJ15
CNJ16
CNJ17
CNJ18
CNJ19
CNJ20
CNJ21
CNJ22
CNJ23
CNJ24
CNJ25
CNJ26
CNJ27
CNJ28
CNJ29
CNJ30
CNJ31
CNJ32
CNJ33
CNJ34
CNJ35
CNJ36
CNJ37
CNJ38
CNJ39
CNJ40
CNJ41
CNJ42
CNJ43
CNJ44
CNJ45
CNJ46
CNJ47
CNJ48
CNJ49
CNJ50
CNJ51
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
IC19
IC20
IC21
IC22
IC23
IC24
IC25
IC26
IC27
IC30
IC31
RN1
RN2
RN3
RN4
RN5
RN6
RN7
RN8
RN9
RN10
RN11
RN12
RN14
RN15
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
JW1
JW2
JW3
JW4
JW5
JW6
JW7
IC-LINK
E1

▨ SOLDER SIDE
■ COMPONENT SIDE

NIF



CNJ1
CNJ2
CNJ3
CNJ4
CNJ5
CNJ6
CNJ7
CNJ8
CNJ9
CNJ10
CNJ11
CNJ12 SOLO LEFT
CNJ13 SOLO LEFT
CNJ14 SOLO RIGHT
CNJ15 SOLO RIGHT
CNJ16 VCA
CNJ17 VCA
CNJ18 VCA
CNJ19 VCA
CNJ20 SOLO LEFT
CNJ21 SOLO LEFT
CNJ22 SOLO RIGHT
CNJ23 SOLO RIGHT
CNJ24 SOLO LEFT
CNJ25 SOLO LEFT
CNJ26 SOLO LEFT
CNJ27 SOLO LEFT
CNJ28 SOLO LEFT
CNJ29 SOLO LEFT
CNJ30 SOLO LEFT
CNJ31 SOLO LEFT
CNJ32 SOLO RIGHT
CNJ33 SOLO RIGHT
CNJ34 SOLO RIGHT
CNJ35 SOLO RIGHT
CNJ36 SOLO RIGHT
CNJ37 SOLO RIGHT
CNJ38 SOLO RIGHT
CNJ39 SOLO RIGHT
CNJ40 SOLO LEFT
CNJ41 SOLO LEFT
CNJ42 SOLO LEFT
CNJ43 SOLO LEFT
CNJ44 SOLO RIGHT
CNJ45 SOLO RIGHT
CNJ46 SOLO RIGHT
CNJ47 SOLO RIGHT
CNJ48 SOLO VCA
CNJ49 SOLO VCA
CNJ50 SOLO VCA
CNJ51 SOLO VCA
B6211 IC1
B6211 IC2
B6211 IC3
B6211 IC4
B6211 IC5
B6211 IC6
B6211 IC7
B6211 IC8
B6211 IC9
74HC244 IC10
74HC244 IC11
74HC244 IC12
74HC244 IC13
74HC244 IC14
74HC244 IC15
74HC244 IC16
74HC244 IC17
74LS08 IC18
74HC244 IC19
TD62503P IC20
74HC154 A1 IC21
74HC154 A2 IC22
74HC154 A3 IC23
74HC154 A4 IC24
IC25 GAL 26CV12
74HC154 A1 IC26
74HC154 A2 IC27
IC30 (NOT FITTED)
IC31A 74HC04
IC31B 74HC04
IC31C 74HC04
IC31D 74HC04
RN1 10K x8
RN2 10K x8
RN3 10K x8
RN4 10K x8
RN5 10K x8
RN6 10K x8
RN7 10K x8
RN8 10K x4
RN9 10K x8
RN10 10K x8
RN11 10K x8
RN12 10K x8
RN13 10K x4
RN14 10K x4
RN15 10K x4
R1 1K
R2 10K
R3 10K
R4 10K
R5 10K
R6 10K
R7 10K
R8 10K
R9 10K
R10 10K
R11 10K
R12
R13
R14
R15
R16
R17
R18
R19
JW1
JW2
JW3
JW4
JW5
JW6
JW7
JW8
JW9
IC LINK
E1
+5V
+18V
-18V
AG
C1 .1/100
C2 .1/100
C3 .1/100
C4 .1/100
C5 .1/100
C6 .1/100
C7 .1/100
C8 .1/100
C9 .1/100
C10 .1/100
C11 .1/100
C12 .1/100
MUTE-1
MUTE-2
MUTE-3
MUTE-4
SOLO-L-CMD
SOLO-R-CMD
+5 VOLTS
+5 VOLTS REF
-18 VOLTS
+18 VOLTS
ANALOG GND
PARALELL-A1
PARALELL-A2
PARALELL-A3
PARALELL-A4
A3-15-SOLO-L
A4-15-SOLO-R

NOTES: 1)UNLESS OTHERWISE SPECIFIED:
ALL RESISTORS ARE IN OHMS, 5%, 1/6W.
ALL CAPACITORS ARE IN MICROFARADS/VOLTS
2)A1 4 BIT 0= PIN 50
1= PIN 47
2= PIN 44
3= PIN 41
A2 4 BIT 0= PIN 49
1= PIN 46
2= PIN 43
3= PIN 40

FUNCTION	JW1	JW2	JW3
PARALELL	IN	OUT	OUT
FREE ASSIGNMENT	OUT	IN	OUT
FIXED ASSIGNMENT	OUT	OUT	OUT
NO MUTES	OUT	OUT	IN

+5 VOLTS ENABLE	JW4 IN
ANALOG GND ENABLE	JW5 IN
DIGITAL GND ENABLE	JW6 IN

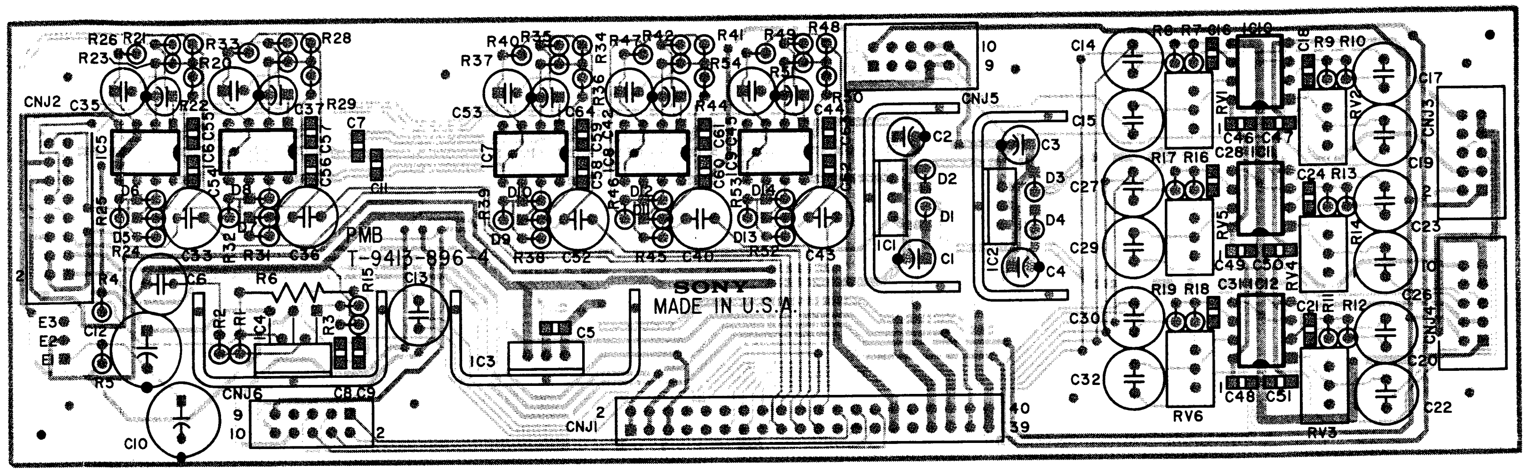
(ALL DECOUPLING CAPS ARE .1/100)

IC DECOUPLING CHART

IC	+18V		-18V		+5V		GND
	PIN	CAP	PIN	CAP	PIN	CAP	PIN
1	13	C22	4	C23	12	C24	5
2	13	C25	4	C26	12	C27	5
3	13	C28	4	C29	12	C30	5
4	13	C31	4	C32	12	C33	5
5	13	C34	4	C35	12	C36	5
6	13	C37	4	C38	12	C39	5
7	13	C40	4	C41	12	C42	5
8	13	C43	4	C44	12	C45	5
9	13	C46	4	C47	12	C48	5
21					24	C14	12
22					24	C15	12
23					24	C16	12
24					24	C17	12
26					24	C18	12
27					24	C19	12
31					14	C13	7

PMB

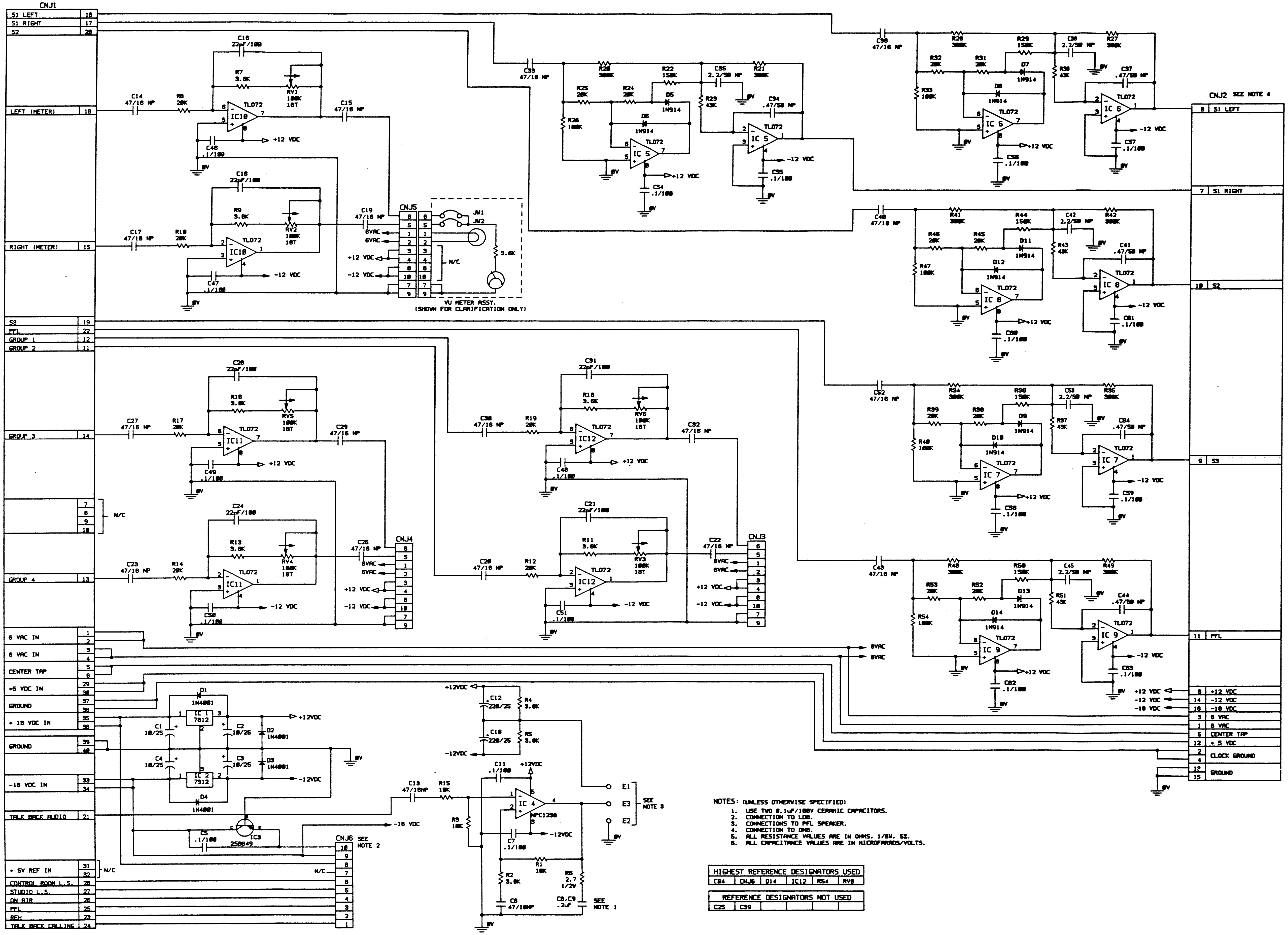
PMB BOARD (MXP-2916/2916P/2926/2926P/2936/2936P)
Panel Meter Board


PMB
T-9413-896-4
SONY
MADE IN U.S.A.
CNJ1
CNJ2
CNJ3
CNJ4
CNJ5
CNJ6
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
RV1
RV2
RV3
RV4
RV5
RV6
C5
C13
C40
C43
C52
C53
R38
R45
R52
D9
D10
D11
D12
D13
D14
E1
E2
E3
40
39
10
9
2

▨ SOLDER SIDE

■ COMPONENT SIDE

PMB


CNJ1
S1 LEFT
S1 RIGHT
S2
LEFT (METER)
RIGHT (METER)
S3
PFL
GROUP 1
GROUP 2
GROUP 3
GROUP 4
N/C
6 VAC IN
6 VAC IN
CENTER TAP
+5 VDC IN
GROUND
+ 18 VDC IN
GROUND
-18 VDC IN
TALK BACK AUDIO
+ 5V REF IN
CONTROL ROOM L.S.
STUDIO L.S.
ON AIR
PFL
REH
TALK BACK CALLING
IC10
IC11
IC12
IC 4
IC 5
IC 6
IC 7
IC 8
IC 9
TL072
NPC1298
IC 1 7812
IC 2 7912
IC3 2SB649
1N4001
1N914
CNJ5
CNJ4
CNJ3
CNJ6 SEE NOTE 2
CNJ2 SEE NOTE 4
JV1
JV2
VU METER ASSY. (SHOWN FOR CLARIFICATION ONLY)
6VAC
+12 VDC
-12 VDC
-18 VDC
0V
E1
E2
E3
SEE NOTE 3
SEE NOTE 1
CLOCK GROUND

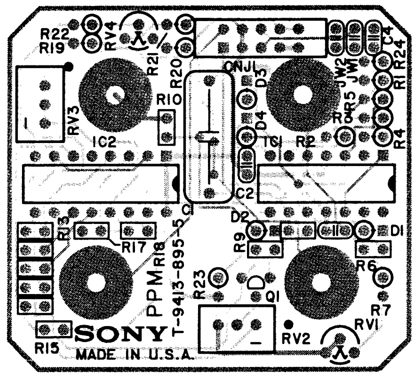
NOTES: (UNLESS OTHERWISE SPECIFIED)

1. USE TWO 0.1uF/100V CERAMIC CAPACITORS.
2. CONNECTION TO LDB.
3. CONNECTIONS TO PFL SPEAKER.
4. CONNECTION TO DMB.
5. ALL RESISTANCE VALUES ARE IN OHMS, 1/8W, 5%.
6. ALL CAPACITANCE VALUES ARE IN MICROFARADS/VOLTS.

HIGHEST REFERENCE DESIGNATORS USED					
C64	CNJ6	D14	IC12	R54	RV6

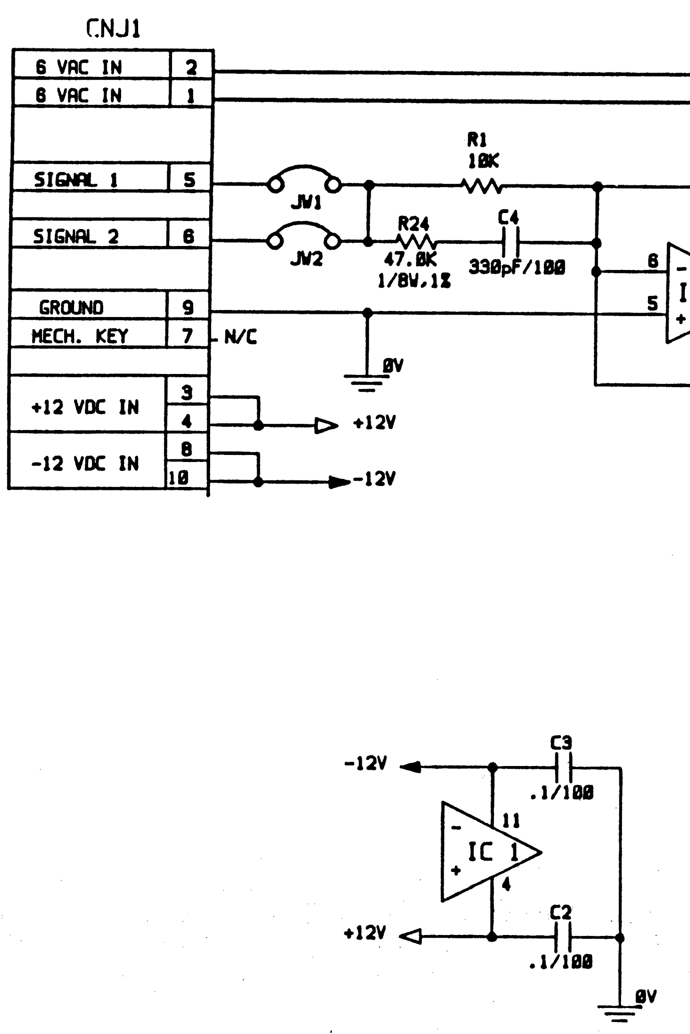
REFERENCE DESIGNATORS NOT USED					
C25	C39				

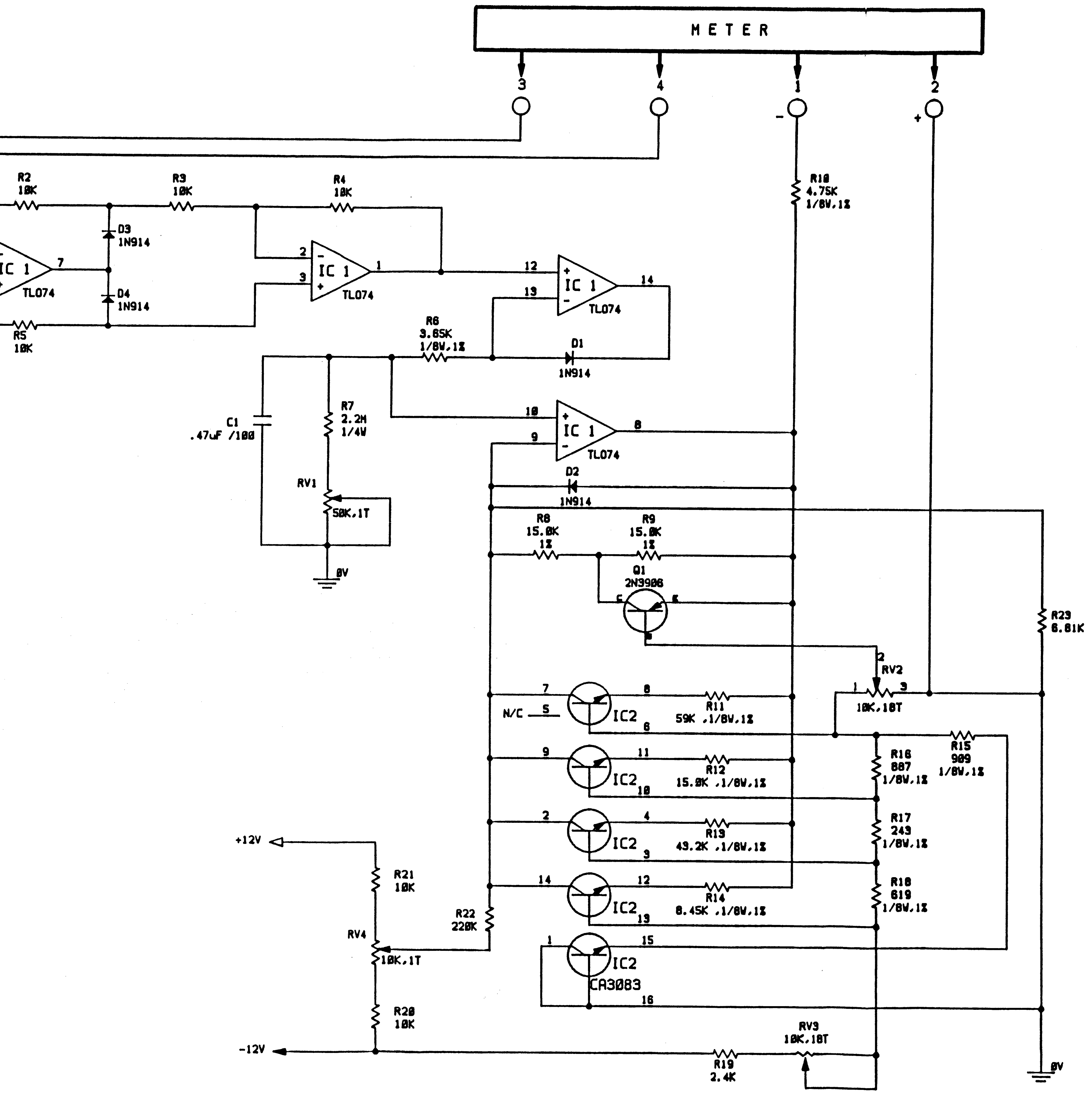
PPM BOARD (MXP-2916P/2926P/2936P)
Prog. Meter Board


R22
R19
RV4
R21
R20
CNJ1
D3
JW2
JW1
C4
R24
R1
R10
RV3
R5
R3
D4
R4
IC2
IC1
R2
C2
C1
D2
R13
R17
R18
R9
D1
R6
PPM
T-9413-895-5
R23
Q1
R7
RV1
RV2
R15
SONY
MADE IN U.S.A.

▨ SOLDER SIDE
■ COMPONENT SIDE

PPM


CNJ1
6 VAC IN 2
6 VAC IN 1
SIGNAL 1 5
SIGNAL 2 6
GROUND 9
MECH. KEY 7
N/C
+12 VDC IN 3 4
-12 VDC IN 8 10
+12V
-12V
JW1
JW2
R1 10K
R24 47.0K 1/8W,1%
C4 330pF/100
0V
-12V
C3 .1/100
IC 1
11
4
+12V
C2 .1/100
0V


METER
3
4
1
2
-
+
R2 10K
R3 10K
R4 10K
R5 10K
IC 1 TL074
6 5 7
2 3 1
12 13 14
10 9 8
D3 1N914
D4 1N914
R6 3.65K 1/8W,1%
D1 1N914
D2 1N914
C1 .47uF /100
R7 2.2M 1/4W
RV1 50K,1T
0V
R10 4.75K 1/8W,1%
R8 15.0K 1%
R9 15.0K 1%
Q1 2N3906
c e b
RV2 10K,18T
1 2 3
R23 6.81K
IC2
7 8 6 5 N/C
9 11 10
2 4 3
14 12 13
1 15 16
CA3083
R11 59K ,1/8W,1%
R12 15.0K ,1/8W,1%
R13 43.2K ,1/8W,1%
R14 8.45K ,1/8W,1%
R15 909 1/8W,1%
R16 887 1/8W,1%
R17 249 1/8W,1%
R18 619 1/8W,1%
R19 2.4K
RV3 10K,18T
+12V
R21 10K
RV4 10K,1T
R22 220K
R20 10K
-12V
0V

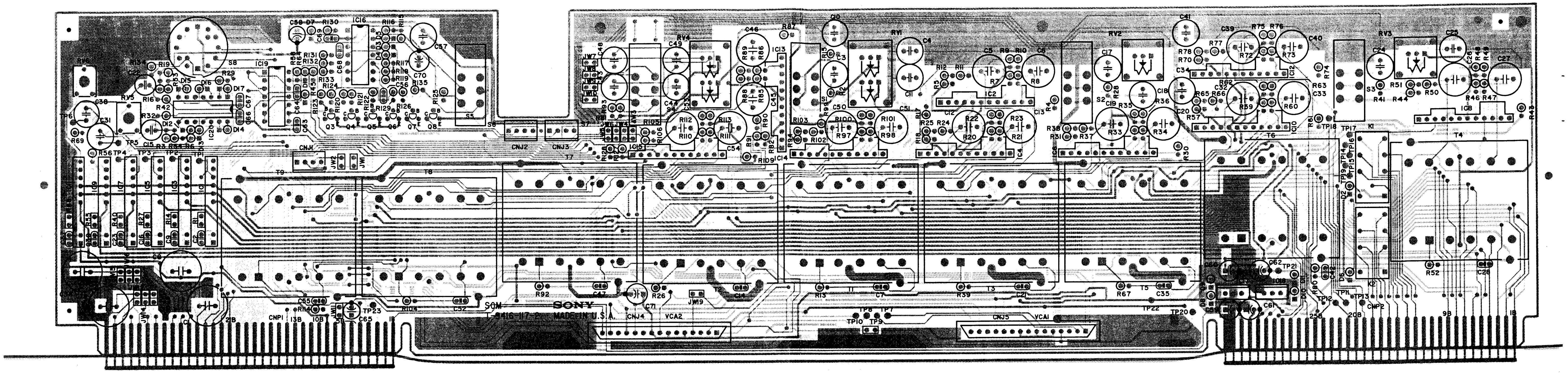
NOTES: (UNLESS OTHERWISE SPECIFIED)

1. ALL RESISTOR VALUES ARE IN OHMS,1/6W,5%.
2. ALL CAPACITOR VALUES ARE IN MICROFARADS/VOLTS.
3. RV1 ADJUSTS (SETS) BALLISTICS (RELEASE).
4. RV2 ADJUSTS (SETS) PPM 1.
5. RV3 ADJUSTS (SETS) PPM 6.
6. RV4 ADJUSTS (SETS) ZERO.
7. PPM 4 IS ADJUSTED (SET) ON THE PANEL METER BOARD (PMB) BY APPROPRIATE LEVEL PRESET.

HIGHEST REFERENCE DESIGNATORS USED					
C3	D4	IC2	Q1	R23	RV4

SMM

SMM BOARD (MXBK-2908)
System Master Module Main Board

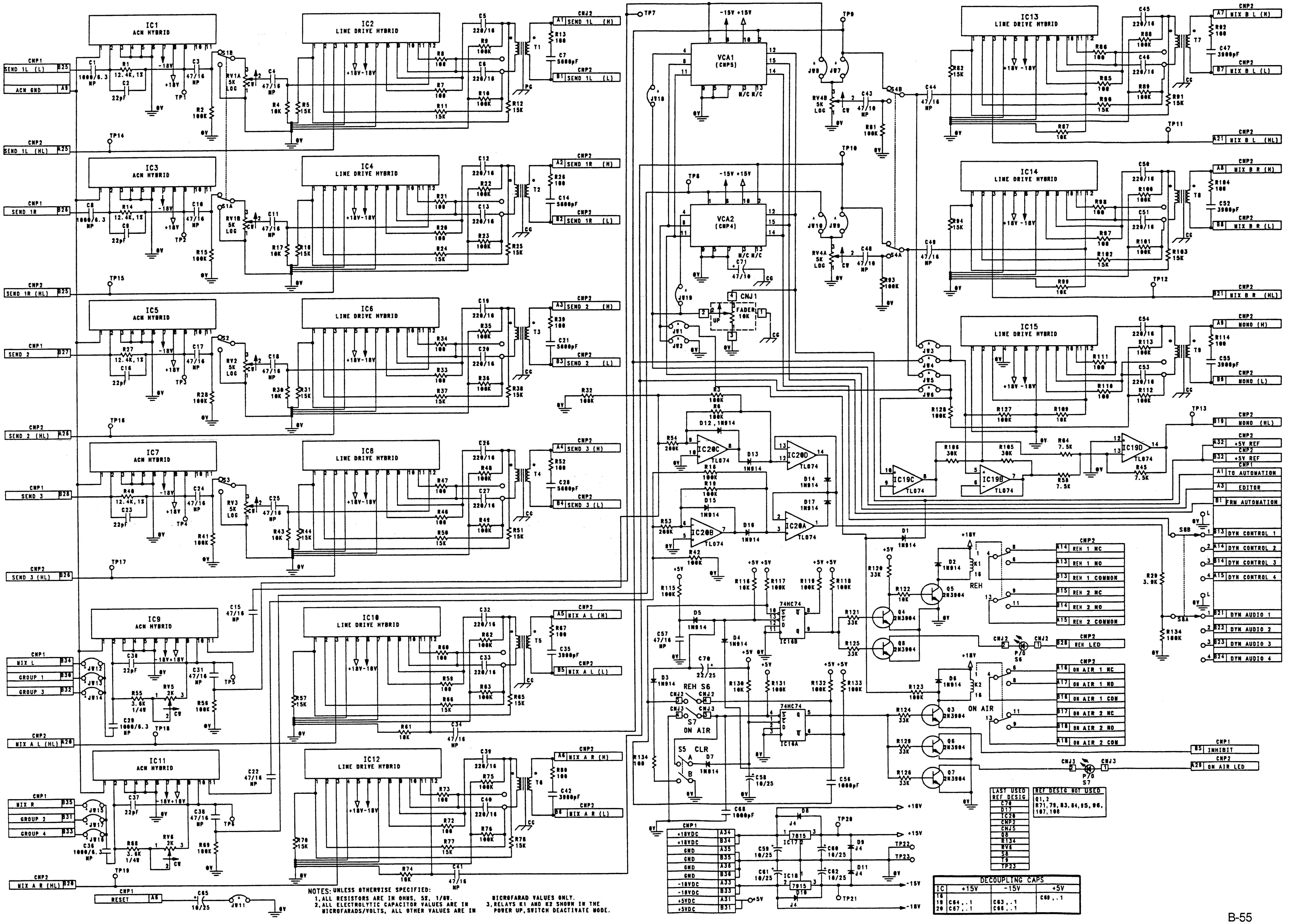

RV1
RV2
RV3
RV4
S1
S2
S3
S4
S5
S6
S7
S8
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC19
IC20
CNJ1
CNJ2
CNJ3
CNJ4
CNJ5
CNP1
CNP2
VCA1
VCA2
T1
T2
T3
T4
T5
T6
T7
T8
T9
K1
K2
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP8
TP9
TP10
TP11
TP12
TP13
TP14
TP15
TP16
TP17
TP18
TP19
TP20
TP21
TP22
TP23
JW1
JW2
JW3
JW4
JW5
JW6
JW7
JW8
JW9
JW10
JW11
JW19
SOM
SONY
MADE IN U.S.A.
1B
2B
9B
10B
13B
20B
25B
1B

▨ SOLDER SIDE
■ COMPONENT SIDE

REFERENCE DESIGNATORS CONTROLS AND INDICATORS

RV1	(AUX3 LEVEL CONTROL)
RV2	(AUX2 LEVEL CONTROL)
RV3	(AUX1 LEVEL CONTROL)
RV4	ST. B
S1	MUTE (AUX1)
S2	MUTE (AUX2)
S3	MUTE (AUX3)
S4	SEP
S5	CLR
S6	REH
S7	ON AIR
S8	DYNAMIC

SMM



IC1 ACN HYBRID
IC2 LINE DRIVE HYBRID
IC3 ACN HYBRID
IC4 LINE DRIVE HYBRID
IC5 ACN HYBRID
IC6 LINE DRIVE HYBRID
IC7 ACN HYBRID
IC8 LINE DRIVE HYBRID
IC9 ACN HYBRID
IC10 LINE DRIVE HYBRID
IC11 ACN HYBRID
IC12 LINE DRIVE HYBRID
IC13 LINE DRIVE HYBRID
IC14 LINE DRIVE HYBRID
IC15 LINE DRIVE HYBRID
VCA1 (CHP5)
VCA2 (CHP4)
IC19C TL074
IC19B TL074
IC19D TL074
IC20C TL074
IC20D TL074
IC20B TL074
IC20A TL074
74HC74 IC16B
74HC74 IC16A
IC17 7815
IC18 7915
SEND 1L (L)
ACN GND
SEND 1L (HL)
SEND 1R
SEND 1R (HL)
SEND 2
SEND 2 (HL)
SEND 3
SEND 3 (HL)
MIX L
GROUP 1
GROUP 3
MIX A L (HL)
MIX R
GROUP 2
GROUP 4
MIX A R (HL)
RESET
SEND 1L (H)
SEND 1L (L)
SEND 1R (H)
SEND 1R (L)
SEND 2 (H)
SEND 2 (L)
SEND 3 (H)
SEND 3 (L)
MIX A L (H)
MIX A L (L)
MIX A R (H)
MIX A R (L)
MIX B L (H)
MIX B L (L)
MIX B L (HL)
MIX B R (H)
MIX B R (L)
MIX B R (HL)
MONO (H)
MONO (L)
MONO (HL)
+5V REF
TO AUTOMATION
EDITOR
FRM AUTOMATION
DYN CONTROL 1
DYN CONTROL 2
DYN CONTROL 3
DYN CONTROL 4
DYN AUDIO 1
DYN AUDIO 2
DYN AUDIO 3
DYN AUDIO 4
REH 1 NC
REH 1 NO
REH 1 COMMON
REH 2 NC
REH 2 NO
REH 2 COMMON
REH LED
ON AIR 1 NC
ON AIR 1 NO
ON AIR 1 COM
ON AIR 2 NC
ON AIR 2 NO
ON AIR 2 COM
INHIBIT
ON AIR LED
FADER 10K
REH S6
S7 ON AIR
S5 CLR
+18VDC
GND
-18VDC
+5VDC
+18V
+15V
-15V
-18V
+5V
0V

NOTES: UNLESS OTHERWISE SPECIFIED:

1. ALL RESISTORS ARE IN OHMS, 5%, 1/8W.
2. ALL ELECTROLYTIC CAPACITOR VALUES ARE IN MICROFARADS/VOLTS, ALL OTHER VALUES ARE IN MICROFARAD VALUES ONLY.
3. RELAYS K1 AND K2 SHOWN IN THE POWER UP, SWITCH DEACTIVATE MODE.

LAST USED REF DESIG
C70
D17
IC20
CNP2
CNJ5
Q8
R134
RV6
S8
T9
TP23

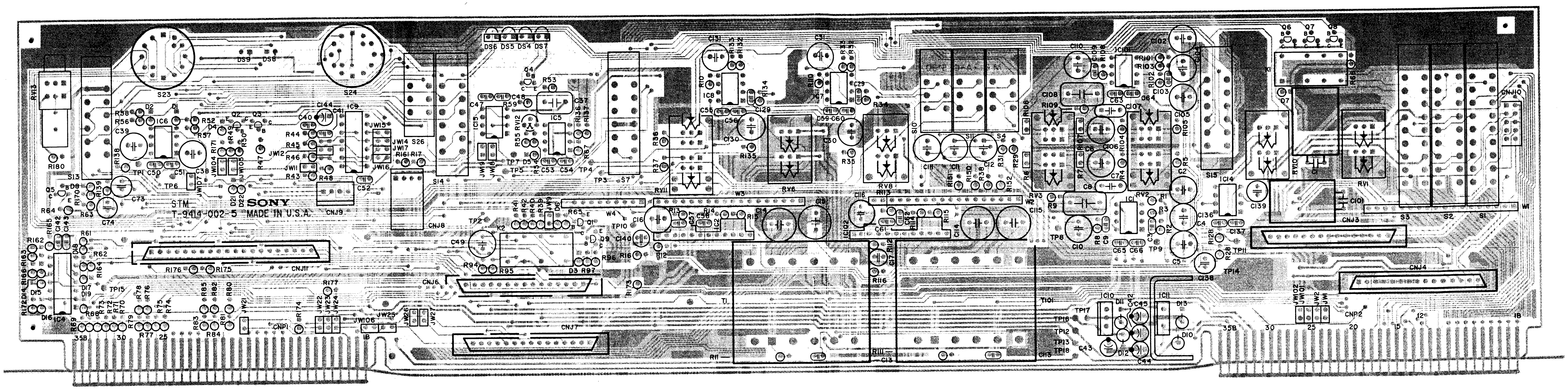
REF DESIG NOT USED
Q1,2 R71,79,83,84,95,96, 107,108

DECOUPLING CAPS

IC	+15V	-15V	+5V
16			C69,.1
19	C64,.1	C63,.1	
20	C67,.1	C66,.1	

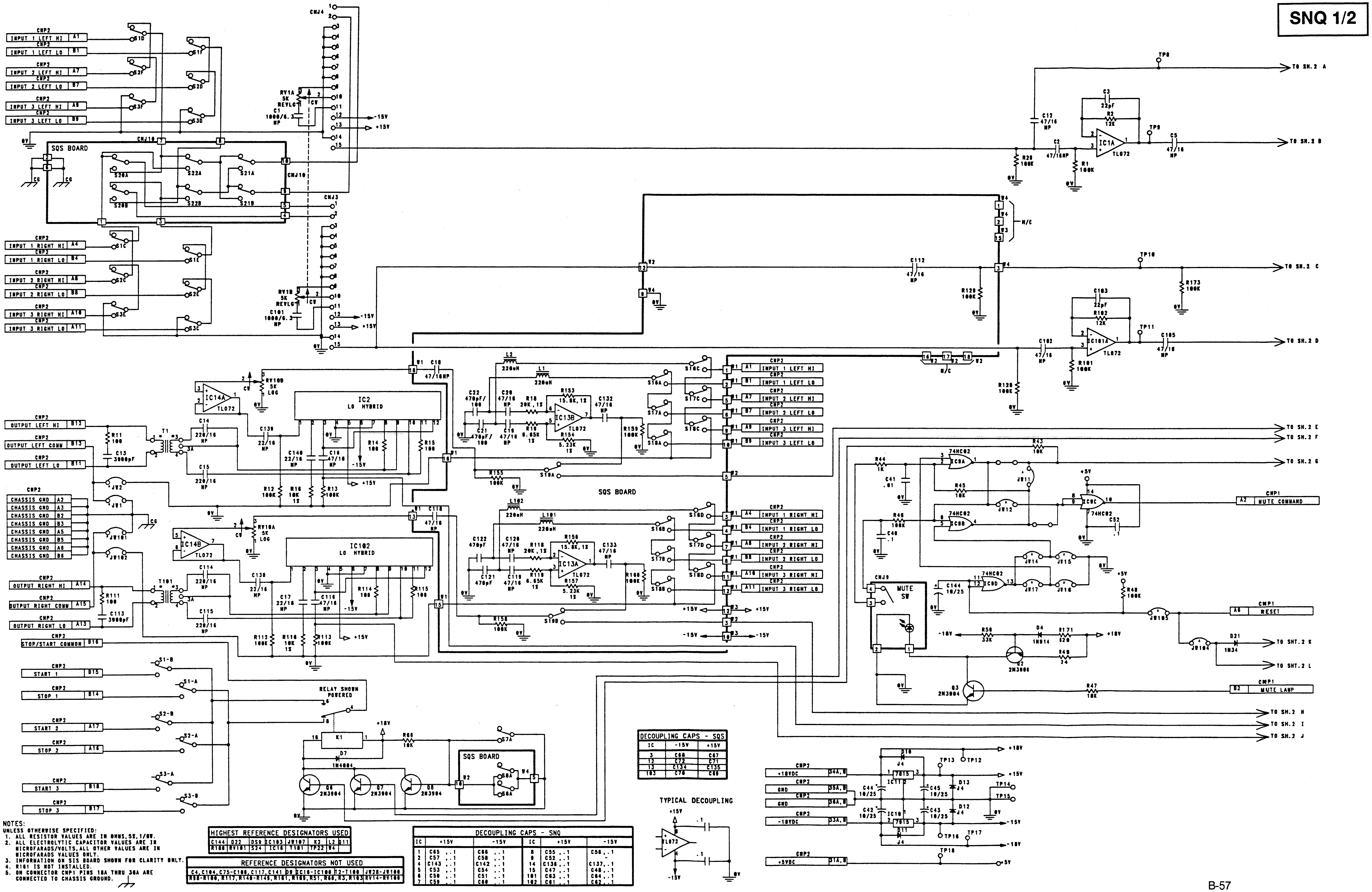
SNQ

SNQ BOARD (MXBK-2909/2909E)
Stereo Module Main Board


SONY
STM
T-9414-002-5
MADE IN U.S.A.

▨ SOLDER SIDE
■ COMPONENT SIDE

SNQ 1/2


CNP2
INPUT 1 LEFT HI
INPUT 1 LEFT LO
INPUT 2 LEFT HI
INPUT 2 LEFT LO
INPUT 3 LEFT HI
INPUT 3 LEFT LO
INPUT 1 RIGHT HI
INPUT 1 RIGHT LO
INPUT 2 RIGHT HI
INPUT 2 RIGHT LO
INPUT 3 RIGHT HI
INPUT 3 RIGHT LO
SQS BOARD
CNJ4
CNJ10
CNJ3
CNJ9
RV1A 5K REVLG
RV1B 5K REVLG
-15V
+15V
IC1A TL072
IC101A TL072
IC2 LO HYBRID
IC102 LO HYBRID
IC13B TL072
IC13A TL072
IC14A TL072
IC14B TL072
OUTPUT LEFT HI
OUTPUT LEFT COMM
OUTPUT LEFT LO
OUTPUT RIGHT HI
OUTPUT RIGHT COMM
OUTPUT RIGHT LO
CHASSIS GND
STOP/START COMMON
START 1
STOP 1
START 2
STOP 2
START 3
STOP 3
RELAY SHOWN POWERED
K1
1N4004
Q6 2N3904
Q7 2N3904
Q8 2N3904
74HC02
MUTE SW
MUTE COMMAND
RESET
MUTE LAMP
Q2 2N3906
Q3 2N3904
TO SH.2 A
TO SH.2 B
TO SH.2 C
TO SH.2 D
TO SH.2 E
TO SH.2 F
TO SH.2 G
TO SHT.2 K
TO SHT.2 L
TO SH.2 H
TO SH.2 I
TO SH.2 J
N/C
+18VDC
GND
-18VDC
+5VDC
7815
7915
TYPICAL DECOUPLING
TL072
.1
0V

DECOUPLING CAPS - SQS		
IC	-15V	+15V
3	C68	C67
12	C72	C71
13	C134	C135
103	C70	C69

NOTES:

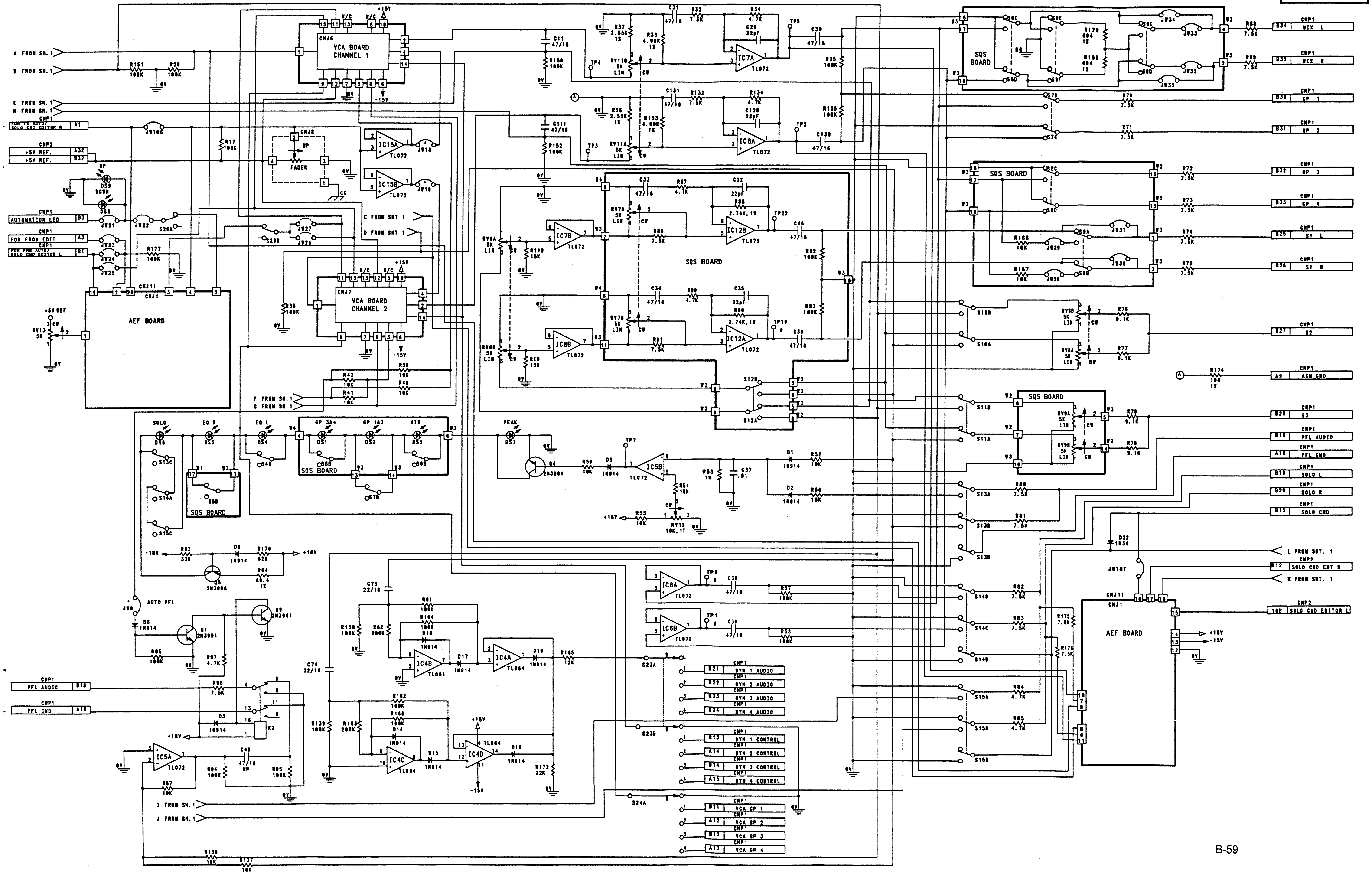
UNLESS OTHERWISE SPECIFIED:
1. ALL RESISTOR VALUES ARE IN OHMS,5%,1/8W.
2. ALL ELECTROLYTIC CAPACITOR VALUES ARE IN MICROFARADS/VOLTS,ALL OTHER VALUES ARE IN MICROFARADS VALUES ONLY.
3. INFORMATION ON SIS BOARD SHOWN FOR CLARITY ONLY.
4. R161 IS NOT INSTALLED.
5. ON CONNECTOR CNP1 PINS 18A THRU 36A ARE CONNECTED TO CHASSIS GROUND.

HIGHEST REFERENCE DESIGNATORS USED							
C144	D22	DS9	IC103	JW107	K2	L2	Q11
R180	RV101	S24	IC16	T101	TP22	W4	

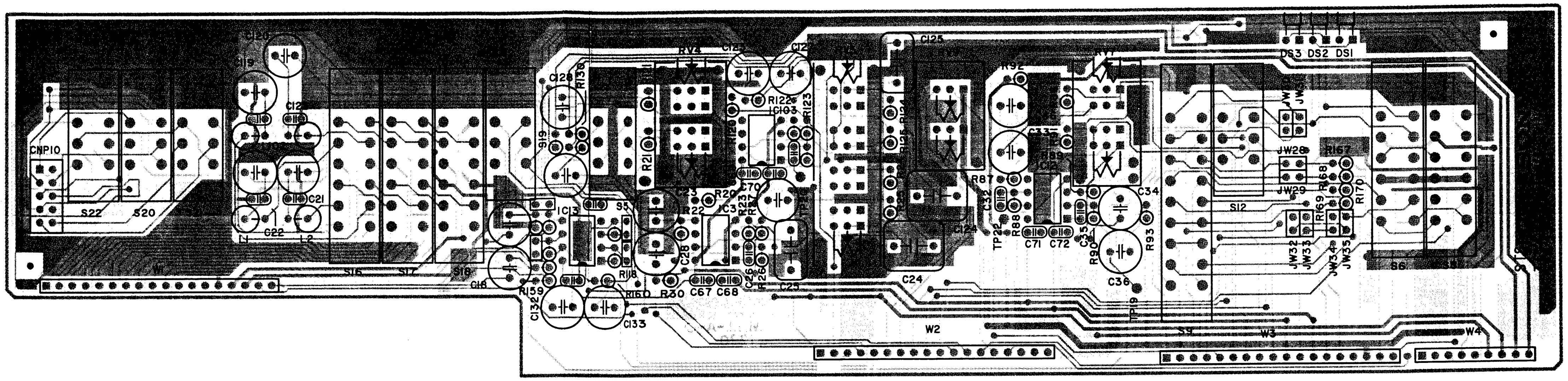
REFERENCE DESIGNATORS NOT USED				
C4,C104,C75-C100,C117,C141	D9	IC16-IC100	T2-T100	JW28-JW100
R98-R100,R117,R140-R149,R161,R169,R51,R60,R3,R103				RV14-RV100

DECOUPLING CAPS - SNQ					
IC	+15V	-15V	IC	+15V	-15V
1	C65 ,.1	C66 ,.1	8	C55 ,.1	C56,.1
2	C57 ,.1	C58 ,.1	9	C52 ,.1	-
4	C143 ,.1	C142 ,.1	14	C136 ,.1	C137,.1
5	C53 ,.1	C54 ,.1	15	C47 ,.1	C48,.1
6	C50 ,.1	C51 ,.1	101	C63 ,.1	C64,.1
7	C59 ,.1	C60 ,.1	102	C61 ,.1	C62,.1

SNQ 2/2


A FROM SH. 1
B FROM SH. 1
E FROM SH. 1
H FROM SH. 1
VCA BOARD CHANNEL 1
VCA BOARD CHANNEL 2
CNJ6
CNJ7
CNJ8
FADER
UP
IC15A
IC15B
TL072
AEF BOARD
CNJ11
CNJ1
+5V REF
RV13 5K
AUTOMATION LED
FDR FROM EDIT
+5V REF.
DS9 DOWN
DS8
C FROM SHT 1
D FROM SHT 1
F FROM SH. 1
G FROM SH. 1
IC7A
IC8A
IC7B
IC8B
IC12A
IC12B
SQS BOARD
TP2
TP3
TP4
TP5
TP7
TP19
TP22
RV11B 5K LIN
RV11A 5K LIN
RV7A 5K LIN
RV7B 5K LIN
RV6A 5K LIN
RV6B 5K LIN
SOLO
EQ R
EQ L
GP 3&4
GP 1&2
MIX
PEAK
DS6
DS5
DS4
DS1
DS2
DS3
DS7
Q4 2N3904
IC5B
RV12 10K, 1T
Q5 2N3906
AUTO PFL
Q1 2N3904
Q9 2N3904
K2
IC5A
IC4A
IC4B
IC4C
IC4D
TL084
IC6A
IC6B
TP6
TP1
PFL AUDIO
PFL CMD
I FROM SH. 1
J FROM SH. 1
S23A
S23B
S24A
DYN 1 AUDIO
DYN 2 AUDIO
DYN 3 AUDIO
DYN 4 AUDIO
DYN 1 CONTROL
DYN 2 CONTROL
DYN 3 CONTROL
DYN 4 CONTROL
VCA GP 1
VCA GP 2
VCA GP 3
VCA GP 4
MIX L
MIX R
GP 1
GP 2
GP 3
GP 4
S1 L
S1 R
S2
S3
ACN GND
PFL AUDIO
PFL CMD
SOLO L
SOLO R
SOLO CMD
L FROM SHT. 1
SOLO CMD EDT R
K FROM SHT. 1
SOLO CMD EDITOR L
AEF BOARD
JW107
D22 1N34
+15V
-15V
RV9A 5K LIN
RV9B 5K LIN
RV8A 5K LIN
RV8B 5K LIN
S10A
S10B
S11A
S11B
S12A
S12B
S13A
S13B
S13D
S14B
S14C
S14D
S15A
S15B
S15D
R174 100 1%

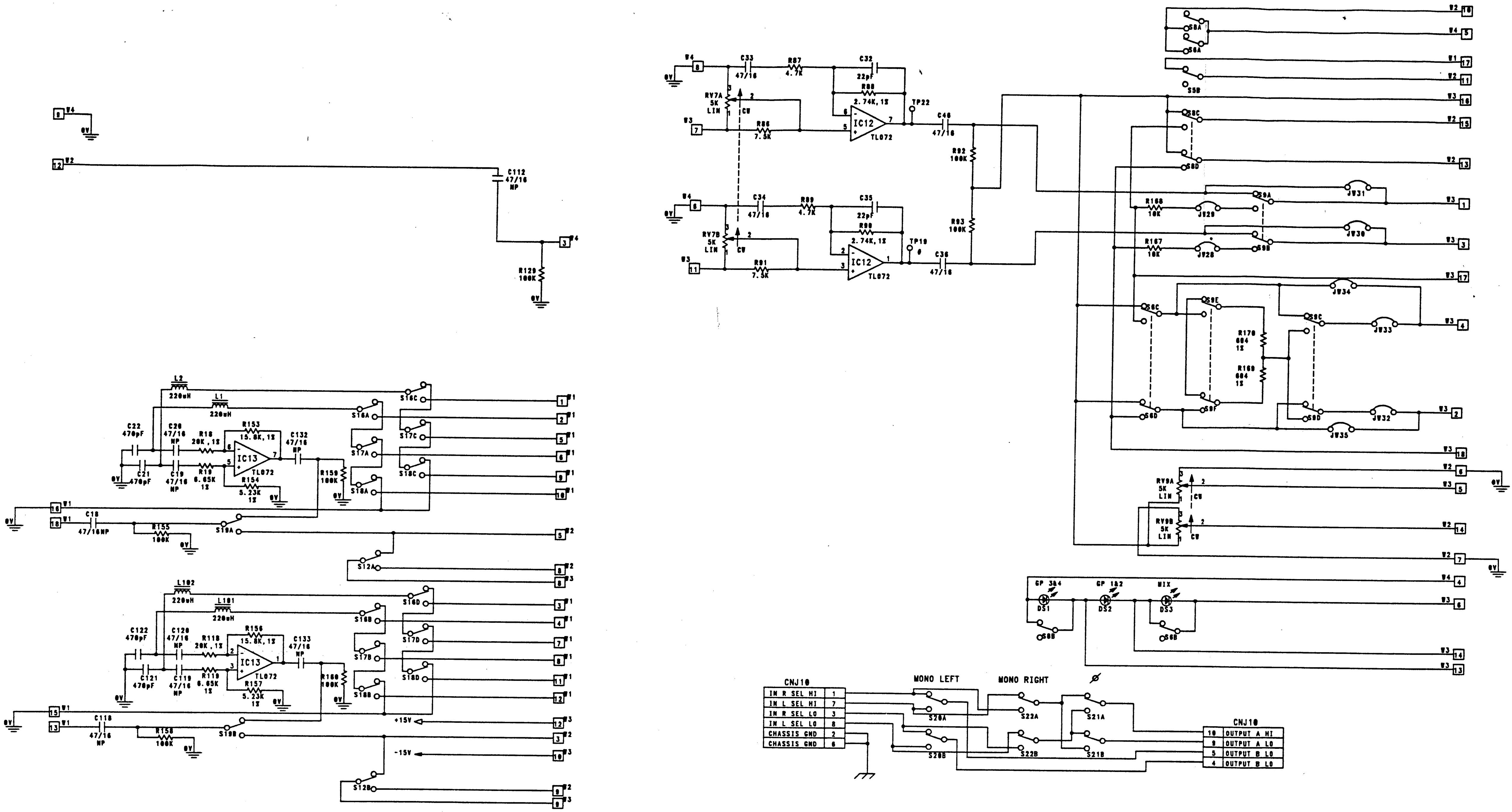
SQS BOARD (MXBK-2909/2909E)
Stereo Sub No EQ Main Board


CNP10
S22
S20
C120
S19
C12
C21
C22
L1
L2
S16
S17
S18
C18
RV4
C128
R136
C125
R122
IC103
R123
R21
IC13
S5
R20
C70
R22
IC3
R23
R118
R160
R30
C67
C68
C25
R159
C132
C133
R92
R87
C32
R88
TP2
C71
C72
R90
R93
C34
C36
TP19
C24
W2
S9
W3
W4
S12
JW28
R167
R168
R169
R170
JW29
JW32
JW33
JW34
JW35
DS3
DS2
DS1
S6

▩ SOLDER SIDE
■ COMPONENT SIDE

REFERENCE DESIGNATORS
CONTROLS AND INDICATORS

DS1	3/4
DS2	1/2
DS3	MIX
RV4	MID 15 +15
RV5	MID 150 5K
RV7	BAL
RV9	PRE-3
S5	EQ
S6	MIX (MASTER ASSIGN)
S8	3-4
S9	MIX (SEND)
S12	PRE
S16	IP1
S17	IP2
S18	IP3
S19	CHAN
S20	MONO L
S21	Ø
S22	MONO R

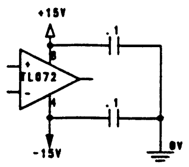

IC12
TL072
IC13
RV7A 5K LIN
RV7B 5K LIN
RV9A 5K LIN
RV9B 5K LIN
C33 47/16
R87 4.7K
C32 22pF
R88 2.74K, 1%
R86 7.5K
TP22
C46 47/16
R92 100K
C34 47/16
R89 4.7K
C35 22pF
R90 2.74K, 1%
R91 7.5K
TP19
C36 47/16
R93 100K
C112 47/16 NP
R129 100K
L2 220uH
L1 220uH
C22 470pF
C20 47/16 NP
R18 20K, 1%
R153 15.8K, 1%
C132 47/16 NP
C21 470pF
C19 47/16 NP
R19 6.65K 1%
R154 5.23K 1%
R159 100K
C18 47/16NP
R155 100K
L102 220uH
L101 220uH
C122 470pF
C120 47/16 NP
R118 20K, 1%
R156 15.8K, 1%
C133 47/16 NP
C121 470pF
C119 47/16 NP
R119 6.65K 1%
R157 5.23K 1%
R160 100K
C118 47/16 NP
R158 100K
R168 10K
R167 10K
R170 604 1%
R169 604 1%
JW28
JW29
JW30
JW31
JW32
JW33
JW34
JW35
GP 3&4
GP 1&2
MIX
DS1
DS2
DS3
+15V
-15V
0V
CW
CNJ10
IN R SEL HI 1
IN L SEL HI 7
IN R SEL LO 3
IN L SEL LO 8
CHASSIS GND 2
CHASSIS GND 6
MONO LEFT
MONO RIGHT
Ø
S20A
S20B
S22A
S22B
S21A
S21B
CNJ10
10 OUTPUT A HI
9 OUTPUT A LO
5 OUTPUT B LO
4 OUTPUT B LO

NOTES:
UNLESS OTHERWISE SPECIFIED:
1. ALL RESISTOR VALUES ARE IN OHMS, 5%, 1/6W.
2. ALL ELECTROLYTIC CAPACITOR VALUES ARE IN MICROFARADS/VOLTS, ALL OTHERS ARE IN MICROFARAD VALUES ONLY.

HIGHEST REFERENCE DESIGNATORS USED								
C135	L102	DS3	IC103	W4				
R170	RV9	S22	TP22					

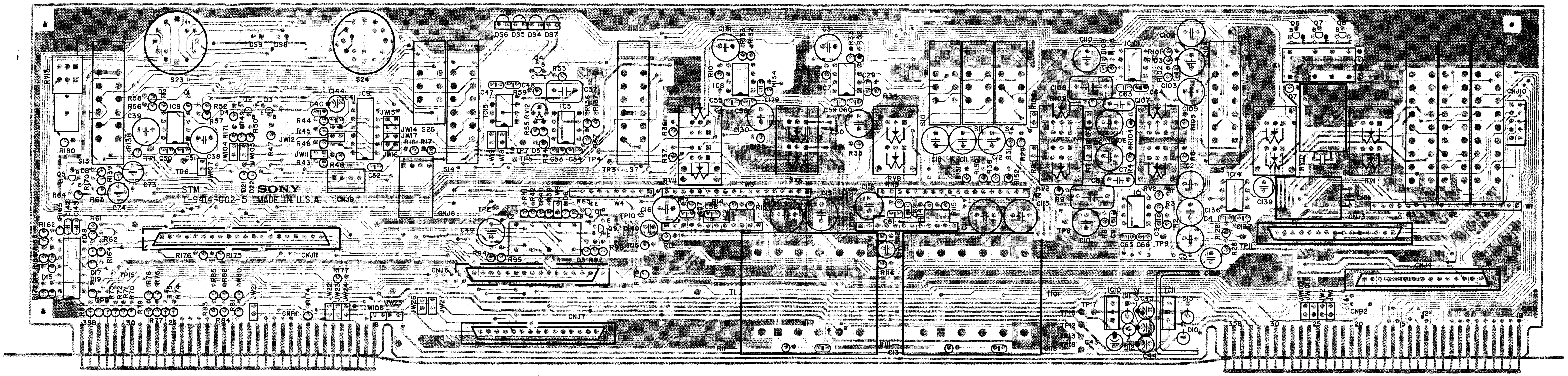
DECOUPLING CAPS		
IC	-15V	+15V
12 13	C72 , .1 C134 , .1	C71 , .1 C135, .1

TYPICAL DECOUPLING


+15V
.1
8
TL072
4
.1
-15V
0V

STM

STM BOARD (MXBK-2904/2904E)
Stereo Module Main Board

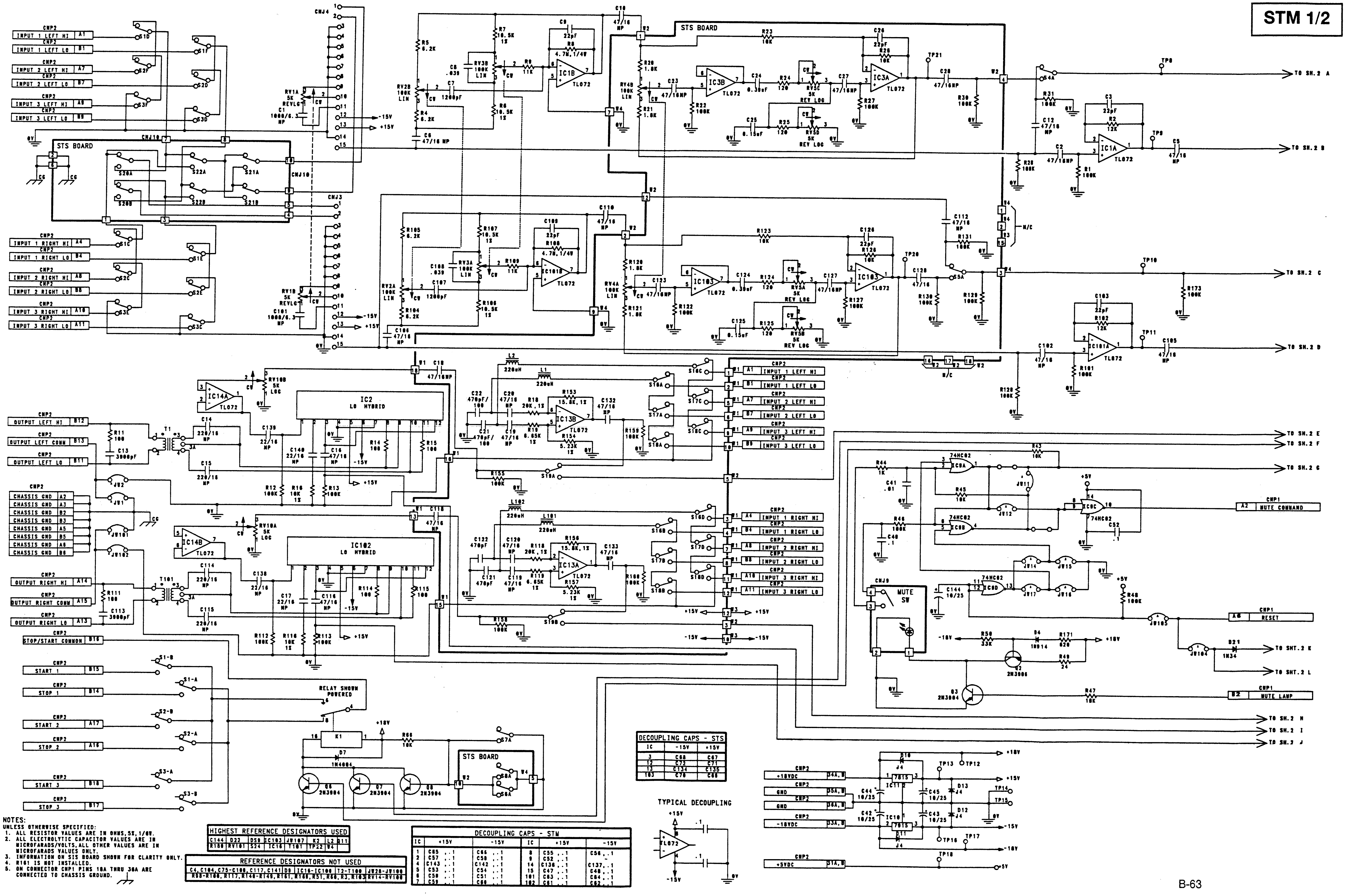

S23
S24
DS9
DS8
DS6 DS5 DS4 DS7
STM
SONY
T-9414-002-5 MADE IN U.S.A.
CNJ11
CNJ6
CNJ7
CNJ8
CNJ9
CNJ3
CNJ4
CNJ10
CNP1
CNP2
RV13
RV11
RV8
RV6
RV3
RV2
RV1
S13
S14
S26
S7
S10
S11
S4
S15
S3
S2
S1

▨ SOLDER SIDE
■ COMPONENT SIDE

REFERENCE DESIGNATORS CONTROLS AND INDICATORS

DS4	EQL
DS5	EQR
DS6	PF/SOLO
DS7	PK
RV1	(INPUT LEVEL CONTROL)
RV2	HF
RV3	LF
RV6	BAL (SEND)
RV8	PRE-2 (LEVEL)
RV10	(OUTPUT LEVEL CONTROL)
RV11	BAL (MASTER ASSIGN)
RV13	VO
S1	IP1
S2	IP2
S3	IP3
S4	EQ
S7	1-2
S10	PRE-2
S11	PRE-3
S13	PFL
S14	SOLO
S15	SOLO (INPUT)
S23	DYNAMIC
S24	VCA GP
S26	LOCAL

STM 1/2


STS BOARD
INPUT 1 LEFT HI
INPUT 1 LEFT LO
INPUT 2 LEFT HI
INPUT 2 LEFT LO
INPUT 3 LEFT HI
INPUT 3 LEFT LO
INPUT 1 RIGHT HI
INPUT 1 RIGHT LO
INPUT 2 RIGHT HI
INPUT 2 RIGHT LO
INPUT 3 RIGHT HI
INPUT 3 RIGHT LO
CNP2
CNJ4
CNJ10
CNJ3
IC1A
IC1B
IC3A
IC3B
IC101A
IC101B
IC103
IC2
LO HYBRID
IC102
IC14A
IC14B
IC13A
IC13B
TL072
74HC02
OUTPUT LEFT HI
OUTPUT LEFT COMM
OUTPUT LEFT LO
OUTPUT RIGHT HI
OUTPUT RIGHT COMM
OUTPUT RIGHT LO
CHASSIS GND
STOP/START COMMON
START 1
STOP 1
START 2
STOP 2
START 3
STOP 3
RELAY SHOWN POWERED
K1
MUTE SW
CNJ9
CNP1
MUTE COMMAND
RESET
MUTE LAMP
TO SH.2 A
TO SH.2 B
TO SH.2 C
TO SH.2 D
TO SH.2 E
TO SH.2 F
TO SH.2 G
TO SHT.2 K
TO SHT.2 L
TO SH.2 H
TO SH.2 I
TO SH.3 J
+18VDC
GND
-18VDC
+5VDC
7815
7915
2N3904
2N3906
1N4004
1N914
1N34
TYPICAL DECOUPLING
+15V
-15V
.1
0V

NOTES:
UNLESS OTHERWISE SPECIFIED:
1. ALL RESISTOR VALUES ARE IN OHMS, 5%, 1/6W.
2. ALL ELECTROLYTIC CAPACITOR VALUES ARE IN MICROFARADS/VOLTS, ALL OTHER VALUES ARE IN MICROFARADS VALUES ONLY.
3. INFORMATION ON SIS BOARD SHOWN FOR CLARITY ONLY.
4. R161 IS NOT INSTALLED.
5. ON CONNECTOR CNP1 PINS 18A THRU 36A ARE CONNECTED TO CHASSIS GROUND.

HIGHEST REFERENCE DESIGNATORS USED

C144	D22	DS9	IC103	JW107	K2	L2	Q11
R180	RV101	S24	IC16	T101	TP22	W4	

REFERENCE DESIGNATORS NOT USED

C4, C104, C75-C100, C117, C141	D8	IC16-IC100	T2-T100	JW28-JW100
R98-R100, R117, R140-R149, R161, R168, R51, R60, R3, R103				RV14-RV100

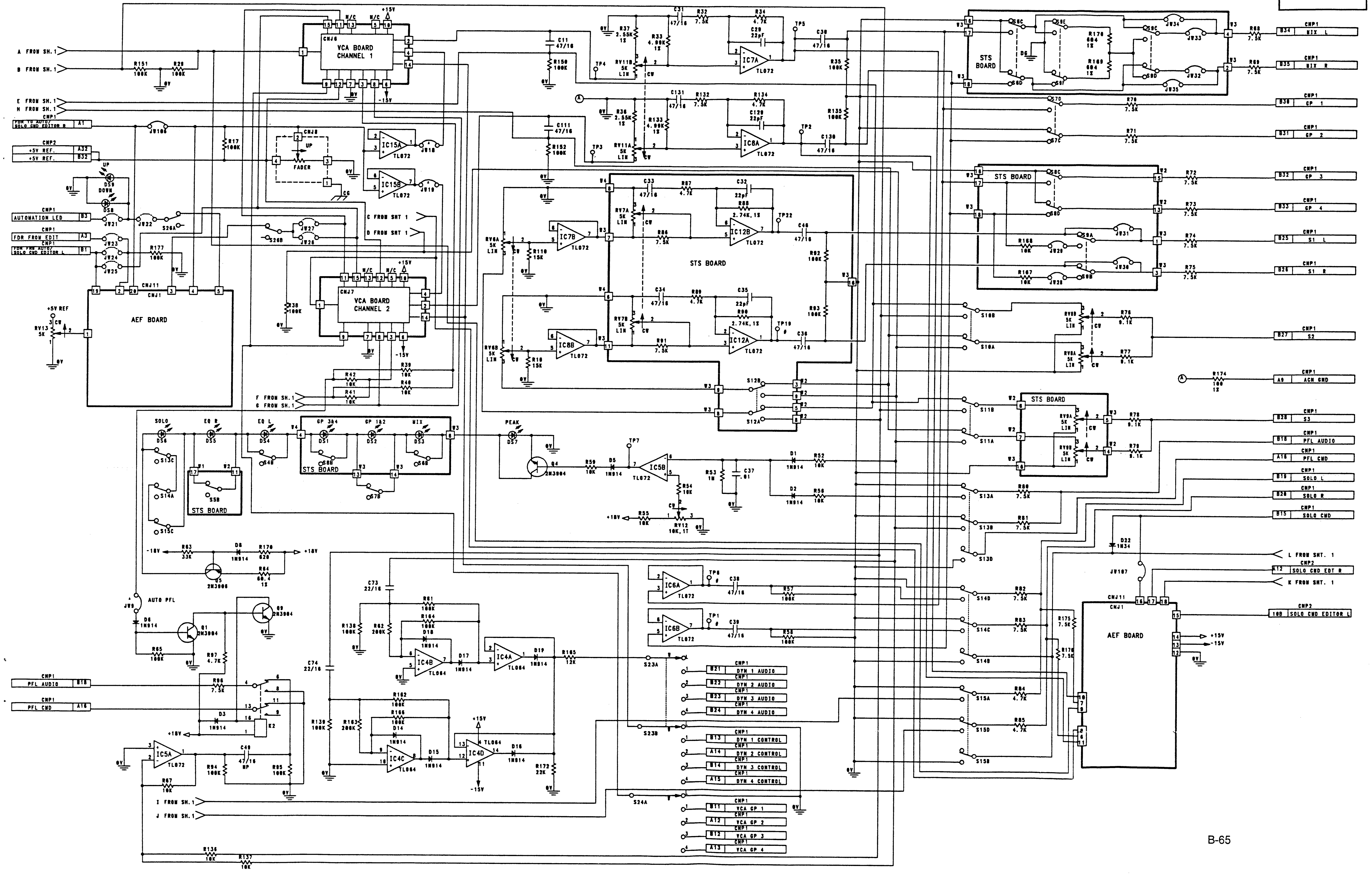
DECOUPLING CAPS - STM

IC	+15V	-15V	IC	+15V	-15V
1	C85 , .1	C86 , .1	8	C55 , .1	C56 , .1
2	C57 , .1	C58 , .1	9	C52 , .1	-
4	C143 , .1	C142 , .1	14	C136 , .1	C137, .1
5	C53 , .1	C54 , .1	15	C47 , .1	C48 , .1
6	C50 , .1	C51 , .1	101	C63 , .1	C64 , .1
7	C59 , .1	C60 , .1	102	C61 , .1	C62 , .1

DECOUPLING CAPS - STS

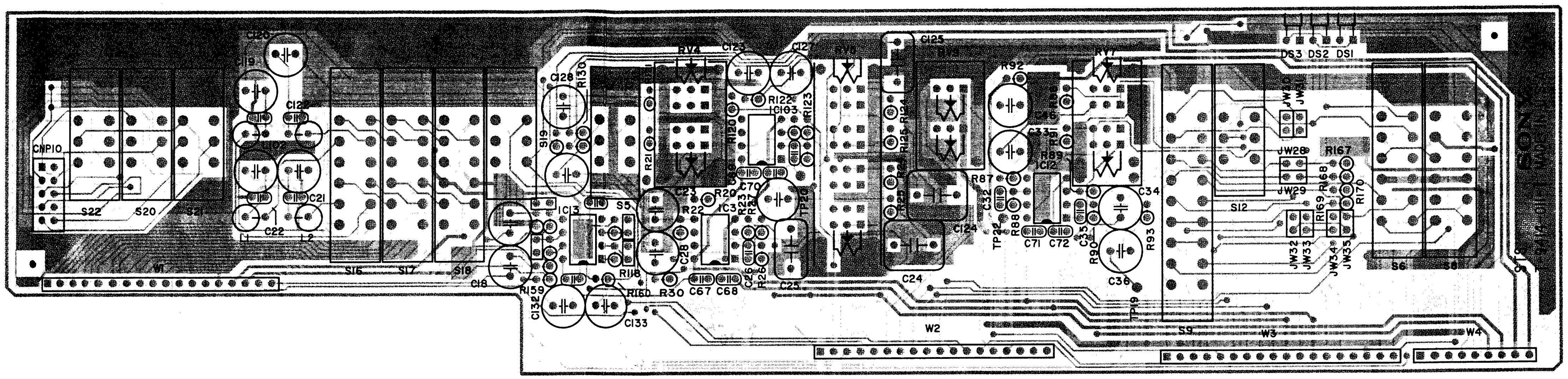
IC	-15V	+15V
3	C68	C67
12	C72	C71
13	C134	C135
103	C70	C69

STM 2/2


A FROM SH.1
B FROM SH.1
E FROM SH.1
H FROM SH.1
VCA BOARD CHANNEL 1
VCA BOARD CHANNEL 2
CNJ6
CNJ7
CNJ8
FADER
UP
DOWN
IC15A
IC15B
TL072
AEF BOARD
CNJ11
CNJ1
+5V REF
RV13 5K
+5V REF.
AUTOMATION LED
FDR FROM EDIT
C FROM SHT 1
D FROM SHT 1
F FROM SH.1
G FROM SH.1
IC7A
IC8A
IC7B
IC8B
IC12A
IC12B
STS BOARD
RV11B 5K LIN
RV11A 5K LIN
RV7A 5K LIN
RV7B 5K LIN
RV6A 5K LIN
RV6B 5K LIN
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP19
TP22
S12A
S12B
SOLO
EQ R
EQ L
GP 3&4
GP 1&2
MIX
PEAK
DS1
DS2
DS3
DS4
DS5
DS6
DS7
IC5B
Q4 2N3904
RV12 10K, 1T
S13C
S14A
S15C
-18V
+18V
Q5 2N3906
AUTO PFL
Q1 2N3904
Q9 2N3904
K2
IC5A
IC4A
IC4B
IC4C
IC4D
TL064
IC6A
IC6B
S23A
S23B
S24A
DYN 1 AUDIO
DYN 2 AUDIO
DYN 3 AUDIO
DYN 4 AUDIO
DYN 1 CONTROL
DYN 2 CONTROL
DYN 3 CONTROL
DYN 4 CONTROL
VCA GP 1
VCA GP 2
VCA GP 3
VCA GP 4
I FROM SH.1
J FROM SH.1
PFL AUDIO
PFL CMD
MIX L
MIX R
GP 1
GP 2
GP 3
GP 4
S1 L
S1 R
S2
ACN GND
S3
SOLO L
SOLO R
SOLO CMD
L FROM SHT. 1
SOLO CMD EDT R
K FROM SHT. 1
SOLO CMD EDITOR L
+15V
-15V
0V

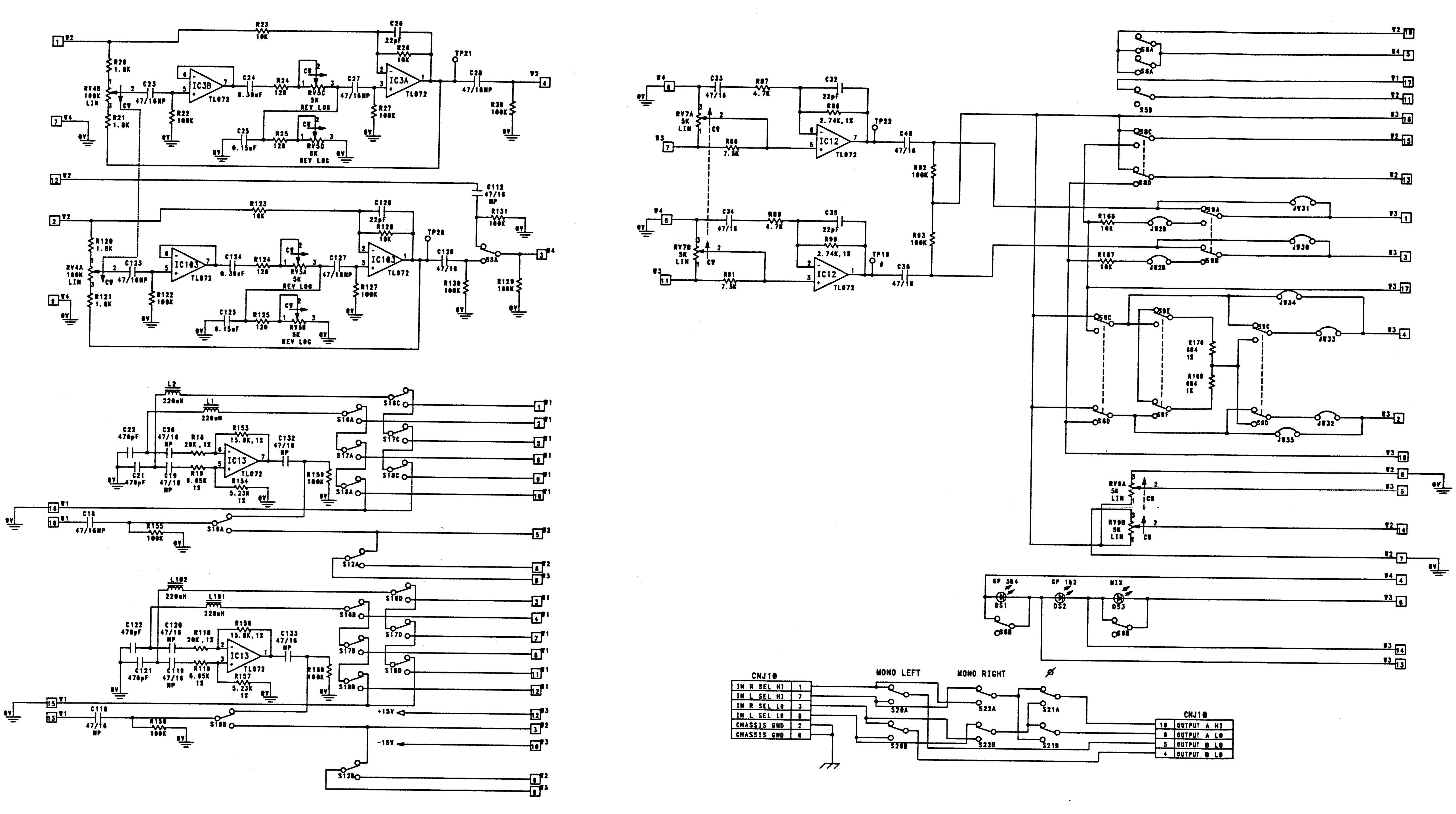
STS

STS BOARD (MXBK-2904/2904E)
Stereo Module SUB Board


CNP10
S22
S20
C20
C123
C21
C22
S16
S17
S18
C18
C126
R130
IC13
S5
R21
RV4
C123
C127
R122
C103
R123
R120
C23
R22
R20
C70
IC3
C28
R118
R159
R160
C132
C133
R30
C67
C68
C25
C125
R124
R125
C124
C24
R92
R87
C32
C33
C35
R89
IC2
R88
TP22
C71
C72
RV7
C34
R90
R93
C36
TP19
DS3
DS2
DS1
JW28
JW29
R167
R168
R169
R170
S12
JW32
JW33
JW34
JW35
S6
S8
S9
W1
W2
W3
W4

▨ SOLDER SIDE

■ COMPONENT SIDE


IC3A
IC3B
IC103
IC12
IC13
TL072
TP21
TP20
TP22
TP19
RV4B 100K LIN
RV4A 100K LIN
RV5C 5K REV LOG
RV5D 5K REV LOG
RV5A 5K REV LOG
RV5B 5K REV LOG
RV7A 5K LIN
RV7B 5K LIN
RV9A 5K LIN
RV9B 5K LIN
L1 220uH
L2 220uH
L101 220uH
L102 220uH
GP 3&4
GP 1&2
MIX
DS1
DS2
DS3
CNJ10
IN R SEL HI
IN L SEL HI
IN R SEL LO
IN L SEL LO
CHASSIS GND
CHASSIS GND
MONO LEFT
MONO RIGHT
Ø
S20A
S20B
S22A
S22B
S21A
S21B
OUTPUT A HI
OUTPUT A LO
OUTPUT B HI
OUTPUT B LO
+15V
-15V
0V

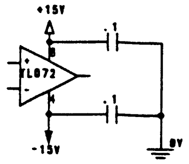
NOTES:
UNLESS OTHERWISE SPECIFIED:
1. ALL RESISTOR VALUES ARE IN OHMS, 5%, 1/8W.
2. ALL ELECTROLYTIC CAPACITOR VALUES ARE IN MICROFARADS/VOLTS, ALL OTHERS ARE IN MICROFARAD VALUES ONLY.

HIGHEST REFERENCE DESIGNATORS USED								
C135	L102	DS3	IC103	W4				
R170	RV9	S22	TP22					

REFERENCE DESIGNATORS NOT USED					
C75-C100, C117, C141		IC16-IC100			
R98-R100, R117, R140-R149			L3-L100		RV14-RV100

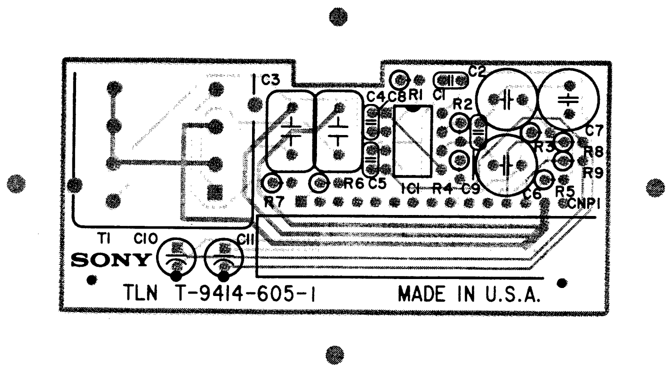
DECOUPLING CAPS		
IC	-15V	+15V
3 12 13 103	C68, .1 C72, .1 C134, .1 C70, .1	C67, .1 C71, .1 C135, .1 C69, .1

TYPICAL DECOUPLING


+15V
.1
8
TL072
+
-
4
.1
-15V
0V

TLN (MXBK-LI23)

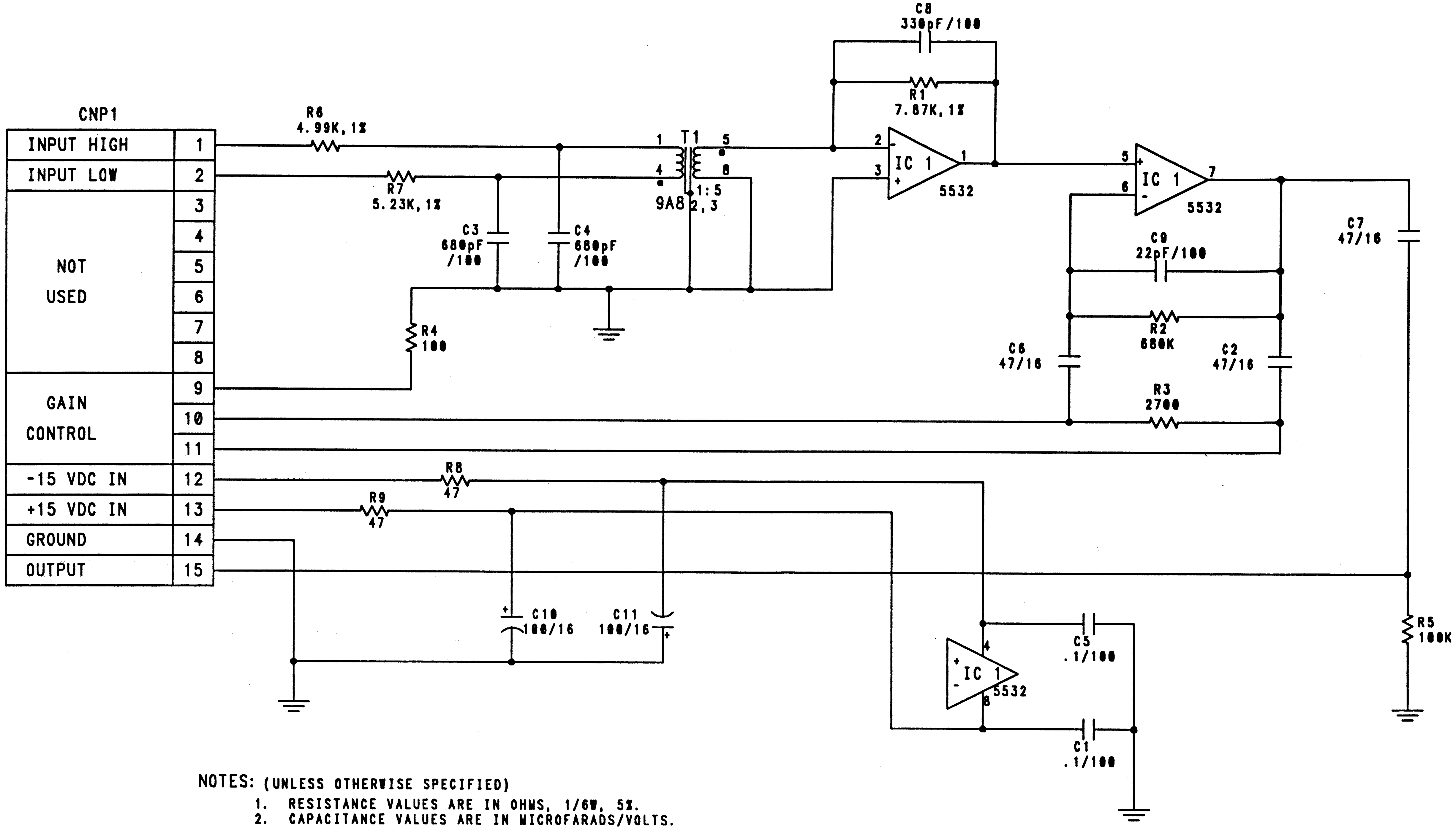
TLN BOARD (MXBK-LI23)
(MXBK-2901/2904/2909)
Transformer Line Amp


C3
C2
C4
C8
RI
CI
R2
C7
R3
R8
R9
R6
C5
IC1
R4
C9
C6
R5
R7
CNPI
TI
CIO
CII
SONY
TLN T-9414-605-I
MADE IN U.S.A.

▨ SOLDER SIDE

■ COMPONENT SIDE

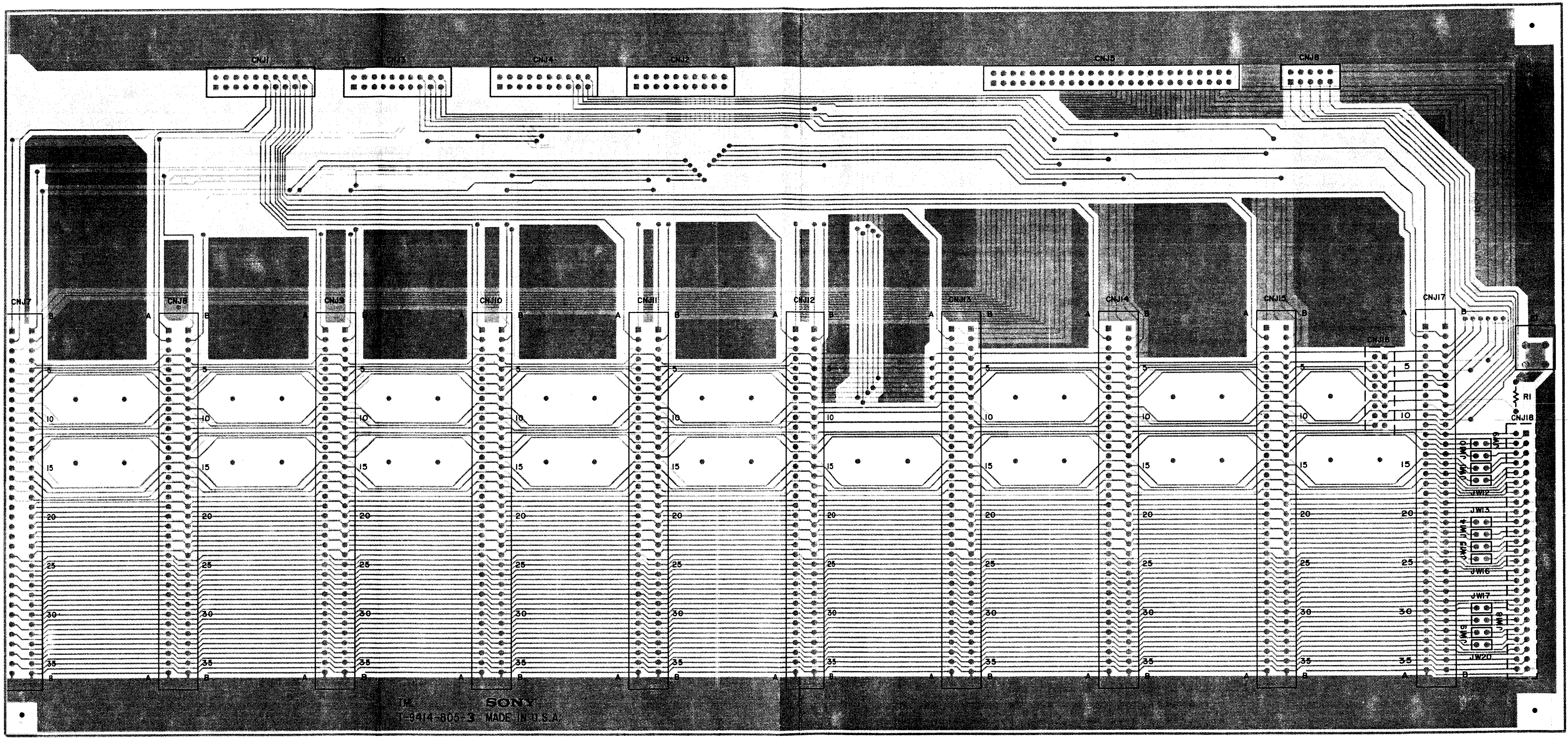
TLN (MXBK-LI23)


C8
330pF/100
R1
7.87K, 1%
CNP1
INPUT HIGH
INPUT LOW
NOT USED
GAIN CONTROL
-15 VDC IN
+15 VDC IN
GROUND
OUTPUT
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
R6
4.99K, 1%
R7
5.23K, 1%
C3
680pF /100
C4
680pF /100
R4
100
T1
1
4
5
8
1:5
9A8
2, 3
IC 1
5532
2
3
1
5
6
7
C9
22pF/100
R2
680K
C6
47/16
C2
47/16
R3
2700
C7
47/16
R8
47
R9
47
C10
100/16
C11
100/16
C5
.1/100
C1
.1/100
4
8
R5
100K

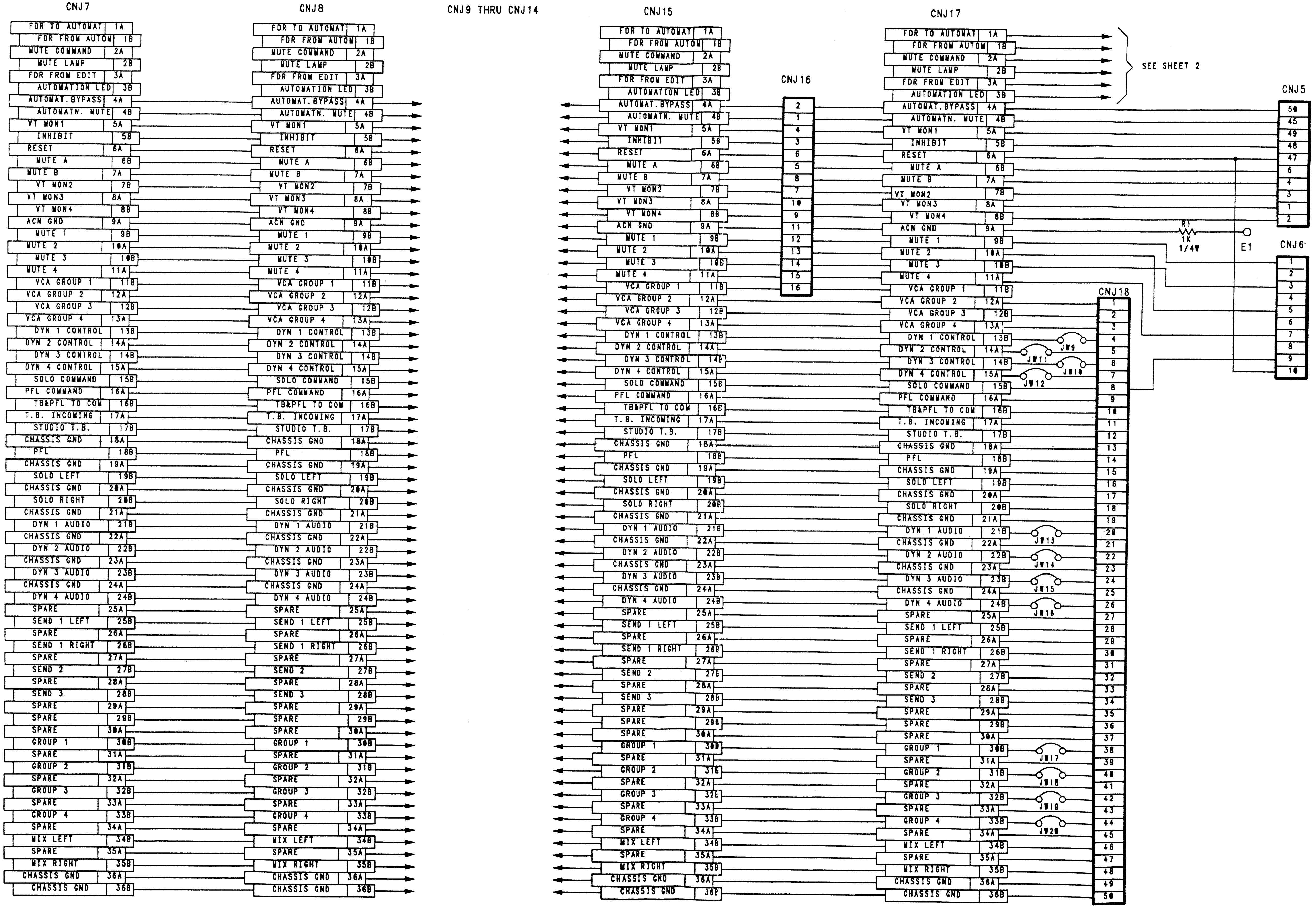
NOTES: (UNLESS OTHERWISE SPECIFIED)
1. RESISTANCE VALUES ARE IN OHMS, 1/6W, 5%.
2. CAPACITANCE VALUES ARE IN MICROFARADS/VOLTS.
3. NOT SHOWN, PINS 6 & 7 OF T1 ARE ALSO GROUNDED.

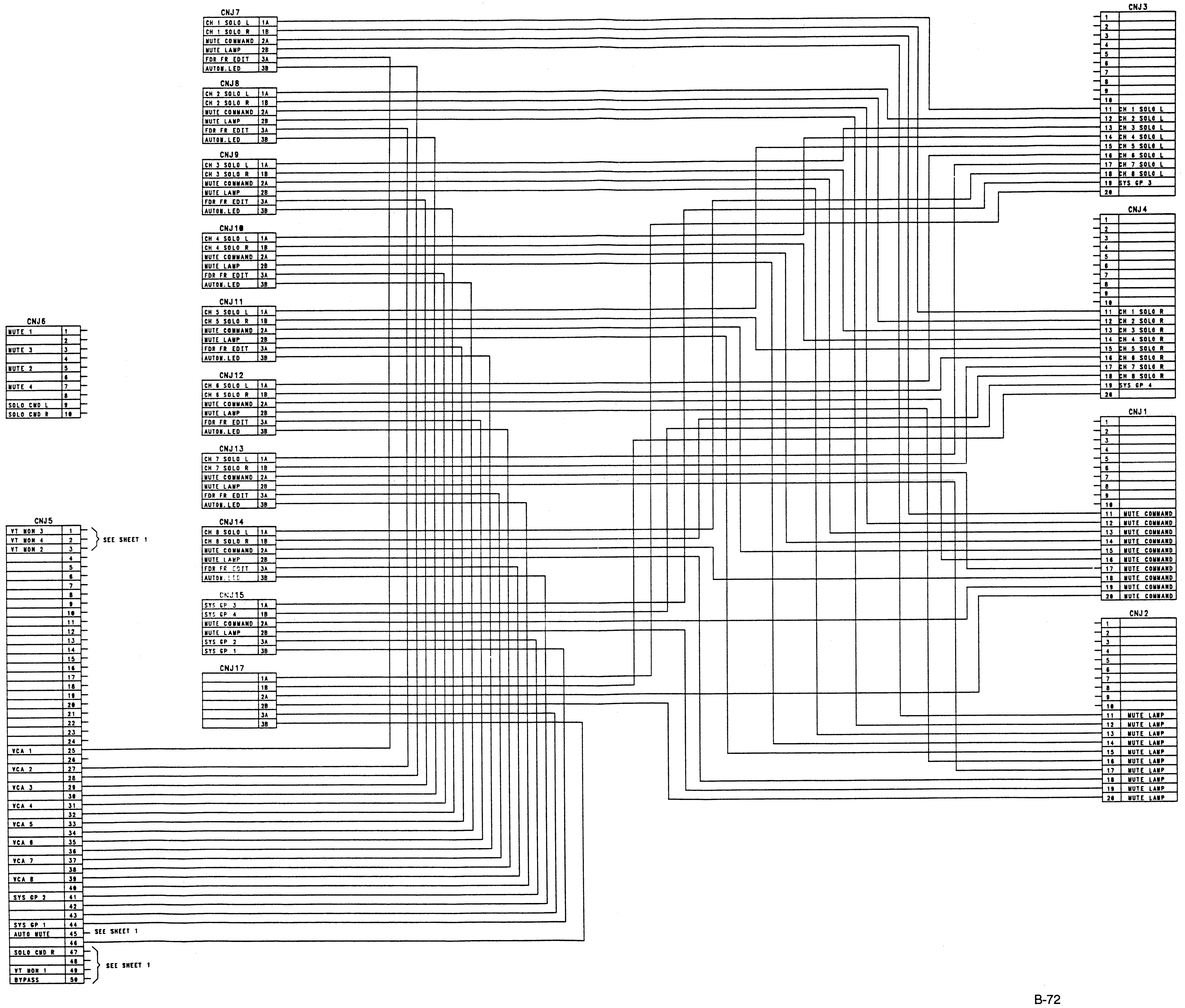
HIGHEST REFERENCE DESIGNATORS USED					
C11	CNP1	IC1	R9	T1	

TML BOARD (MXBK-2926/2926P)
Mother Board Lower

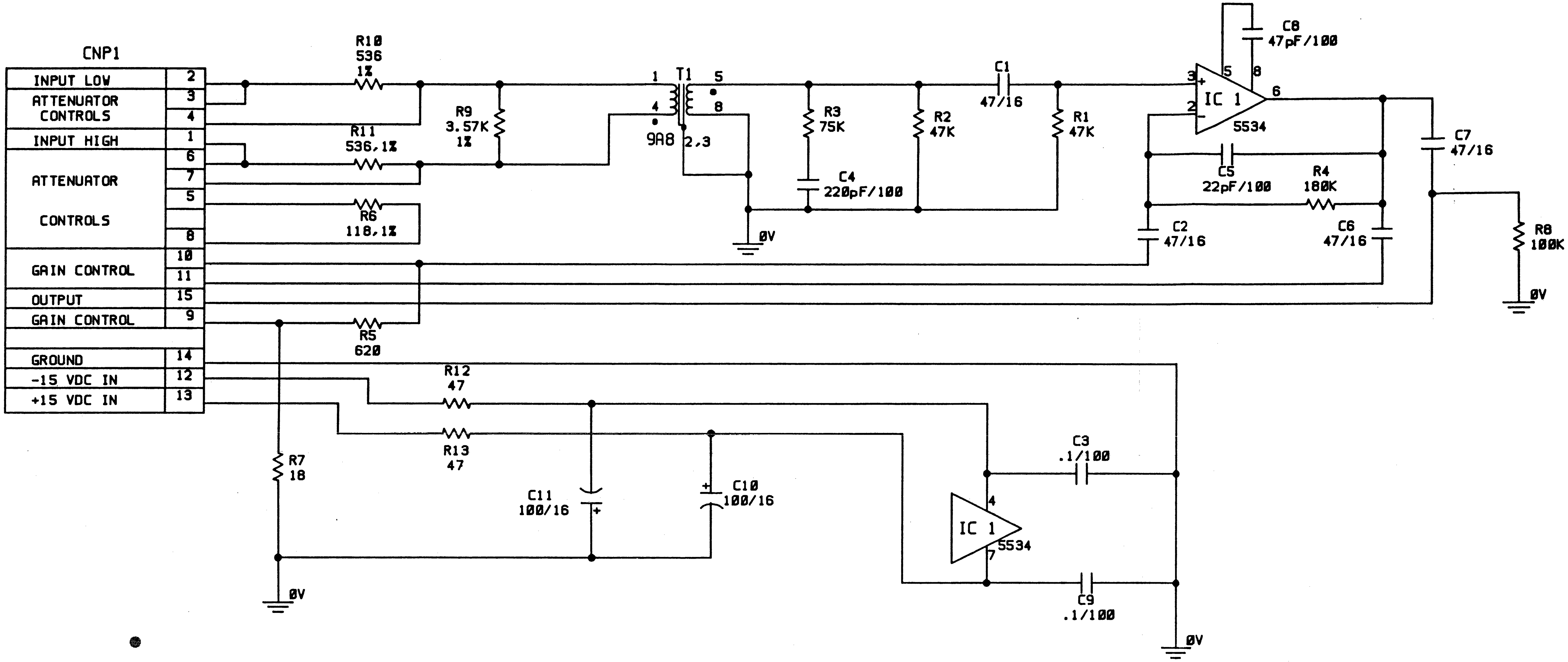

CNJ1
CNJ3
CNJ4
CNJ2
CNJ5
CNJ6
CNJ7
CNJ8
CNJ9
CNJ10
CNJ11
CNJ12
CNJ13
CNJ14
CNJ15
CNJ16
CNJ17
CNJ18
R1
JW9
JW10
JW11
JW12
JW13
JW14
JW15
JW16
JW17
JW18
JW19
JW20
A
B
5
10
15
20
25
30
35
TML
SONY
1-9414-805-3 MADE IN U.S.A.

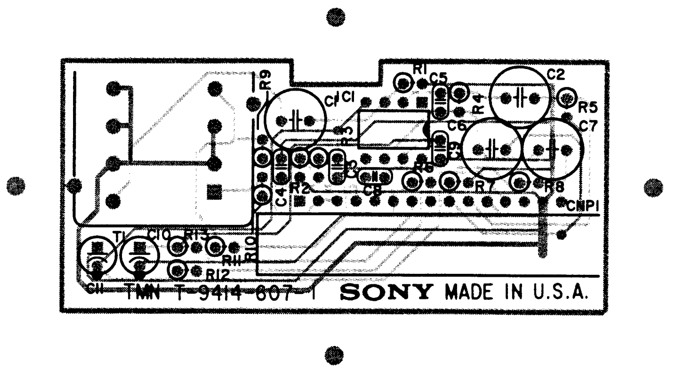
▨ SOLDER SIDE
■ COMPONENT SIDE


CNJ7
CNJ8
CNJ9 THRU CNJ14
CNJ15
CNJ16
CNJ17
CNJ18
CNJ5
CNJ6
SEE SHEET 2
FDR TO AUTOMAT 1A
FDR FROM AUTOM 1B
MUTE COMMAND 2A
MUTE LAMP 2B
FDR FROM EDIT 3A
AUTOMATION LED 3B
AUTOMAT.BYPASS 4A
AUTOMATN. MUTE 4B
VT MON1 5A
INHIBIT 5B
RESET 6A
MUTE A 6B
MUTE B 7A
VT MON2 7B
VT MON3 8A
VT MON4 8B
ACN GND 9A
MUTE 1 9B
MUTE 2 10A
MUTE 3 10B
MUTE 4 11A
VCA GROUP 1 11B
VCA GROUP 2 12A
VCA GROUP 3 12B
VCA GROUP 4 13A
DYN 1 CONTROL 13B
DYN 2 CONTROL 14A
DYN 3 CONTROL 14B
DYN 4 CONTROL 15A
SOLO COMMAND 15B
PFL COMMAND 16A
TB&PFL TO COM 16B
T.B. INCOMING 17A
STUDIO T.B. 17B
CHASSIS GND 18A
PFL 18B
CHASSIS GND 19A
SOLO LEFT 19B
CHASSIS GND 20A
SOLO RIGHT 20B
CHASSIS GND 21A
DYN 1 AUDIO 21B
CHASSIS GND 22A
DYN 2 AUDIO 22B
CHASSIS GND 23A
DYN 3 AUDIO 23B
CHASSIS GND 24A
DYN 4 AUDIO 24B
SPARE 25A
SEND 1 LEFT 25B
SPARE 26A
SEND 1 RIGHT 26B
SPARE 27A
SEND 2 27B
SPARE 28A
SEND 3 28B
SPARE 29A
SPARE 29B
SPARE 30A
GROUP 1 30B
SPARE 31A
GROUP 2 31B
SPARE 32A
GROUP 3 32B
SPARE 33A
GROUP 4 33B
SPARE 34A
MIX LEFT 34B
SPARE 35A
MIX RIGHT 35B
CHASSIS GND 36A
CHASSIS GND 36B
2 1 4 3 6 5 8 7 10 9 11 12 13 14 15 16
50 45 49 48 47 6 4 3 1 2
1 2 3 4 5 6 7 8 9 10
1–50
R1
1K
1/4W
E1
JW9
JW10
JW11
JW12
JW13
JW14
JW15
JW16
JW17
JW18
JW19
JW20


CNJ7
CH 1 SOLO L 1A
CH 1 SOLO R 1B
MUTE COMMAND 2A
MUTE LAMP 2B
FDR FR EDIT 3A
AUTOM.LED 3B
CNJ8
CH 2 SOLO L 1A
CH 2 SOLO R 1B
MUTE COMMAND 2A
MUTE LAMP 2B
FDR FR EDIT 3A
AUTOM.LED 3B
CNJ9
CH 3 SOLO L 1A
CH 3 SOLO R 1B
MUTE COMMAND 2A
MUTE LAMP 2B
FDR FR EDIT 3A
AUTOM.LED 3B
CNJ10
CH 4 SOLO L 1A
CH 4 SOLO R 1B
MUTE COMMAND 2A
MUTE LAMP 2B
FDR FR EDIT 3A
AUTOM.LED 3B
CNJ11
CH 5 SOLO L 1A
CH 5 SOLO R 1B
MUTE COMMAND 2A
MUTE LAMP 2B
FDR FR EDIT 3A
AUTOM.LED 3B
CNJ12
CH 6 SOLO L 1A
CH 6 SOLO R 1B
MUTE COMMAND 2A
MUTE LAMP 2B
FDR FR EDIT 3A
AUTOM.LED 3B
CNJ13
CH 7 SOLO L 1A
CH 7 SOLO R 1B
MUTE COMMAND 2A
MUTE LAMP 2B
FDR FR EDIT 3A
AUTOM.LED 3B
CNJ14
CH 8 SOLO L 1A
CH 8 SOLO R 1B
MUTE COMMAND 2A
MUTE LAMP 2B
FDR FR EDIT 3A
AUTOM.LED 3B
CNJ15
SYS GP 3 1A
SYS GP 4 1B
MUTE COMMAND 2A
MUTE LAMP 2B
SYS GP 2 3A
SYS GP 1 3B
CNJ17
1A
1B
2A
2B
3A
3B
CNJ6
MUTE 1 1
2
MUTE 3 3
4
MUTE 2 5
6
MUTE 4 7
8
SOLO CMD L 9
SOLO CMD R 10
CNJ5
VT MON 3 1
VT MON 4 2
VT MON 2 3
SEE SHEET 1
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
VCA 1 25
26
VCA 2 27
28
VCA 3 29
30
VCA 4 31
32
VCA 5 33
34
VCA 6 35
36
VCA 7 37
38
VCA 8 39
40
SYS GP 2 41
42
43
SYS GP 1 44
AUTO MUTE 45
SEE SHEET 1
46
SOLO CMD R 47
48
VT MON 1 49
BYPASS 50
SEE SHEET 1
CNJ3
1
2
3
4
5
6
7
8
9
10
11 CH 1 SOLO L
12 CH 2 SOLO L
13 CH 3 SOLO L
14 CH 4 SOLO L
15 CH 5 SOLO L
16 CH 6 SOLO L
17 CH 7 SOLO L
18 CH 8 SOLO L
19 SYS GP 3
20
CNJ4
1
2
3
4
5
6
7
8
9
10
11 CH 1 SOLO R
12 CH 2 SOLO R
13 CH 3 SOLO R
14 CH 4 SOLO R
15 CH 5 SOLO R
16 CH 6 SOLO R
17 CH 7 SOLO R
18 CH 8 SOLO R
19 SYS GP 4
20
CNJ1
1
2
3
4
5
6
7
8
9
10
11 MUTE COMMAND
12 MUTE COMMAND
13 MUTE COMMAND
14 MUTE COMMAND
15 MUTE COMMAND
16 MUTE COMMAND
17 MUTE COMMAND
18 MUTE COMMAND
19 MUTE COMMAND
20 MUTE COMMAND
CNJ2
1
2
3
4
5
6
7
8
9
10
11 MUTE LAMP
12 MUTE LAMP
13 MUTE LAMP
14 MUTE LAMP
15 MUTE LAMP
16 MUTE LAMP
17 MUTE LAMP
18 MUTE LAMP
19 MUTE LAMP
20 MUTE LAMP

TMN BOARD (MXBK-LI23)
(MXBK-2901)
Transformer Mic Amp


CNP1
INPUT LOW 2
ATTENUATOR CONTROLS 3 4
INPUT HIGH 1
ATTENUATOR CONTROLS 6 7 5 8
GAIN CONTROL 10 11
OUTPUT 15
GAIN CONTROL 9
GROUND 14
-15 VDC IN 12
+15 VDC IN 13
R10 536 1%
R11 536, 1%
R9 3.57K 1%
R6 118, 1%
R5 620
T1 1 5 4 8 9A8 2,3
0V
R3 75K
C4 220pF/100
R2 47K
C1 47/16
R1 47K
C8 47pF/100
IC 1 5534
3 5 8 6 2
C5 22pF/100
R4 100K
C2 47/16
C6 47/16
C7 47/16
R8 100K
0V
R12 47
R13 47
R7 18
C11 100/16
C10 100/16
0V
C3 .1/100
IC 1 5534 4 7
C9 .1/100
0V


R9
C1
R1
C5
C2
R5
C7
R4
C6
C3
R3
C4
R2
C8
R6
R7
R8
CNP1
T1
C10
R13
R11
R10
C11
R12
TMN T-9414-607-1 SONY MADE IN U.S.A.

▨ SOLDER SIDE
■ COMPONENT SIDE

HIGHEST REFERENCE DESIGNATORS USED

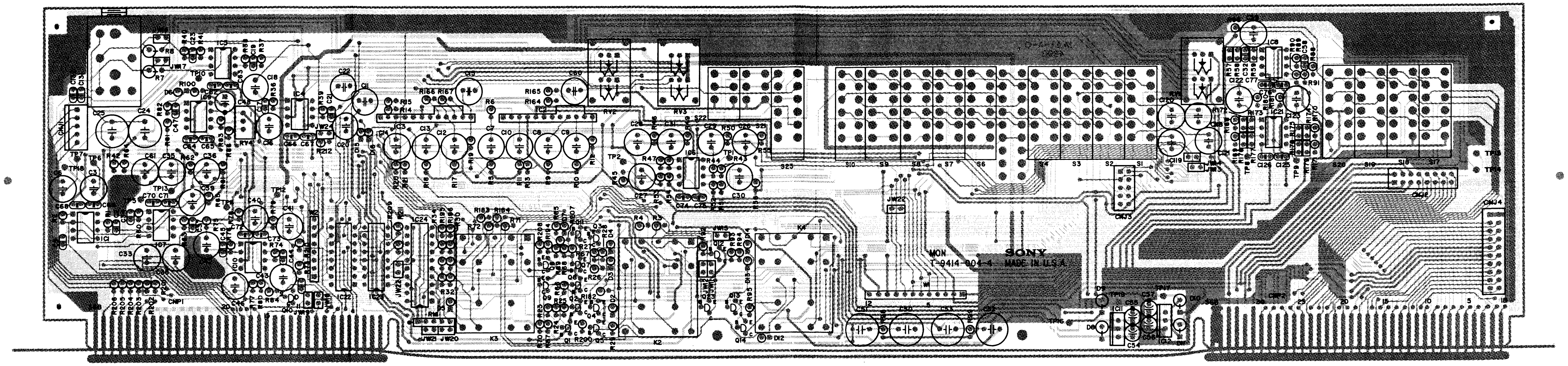
C11	CNP1	IC1	R13	T1	

NOTES: (UNLESS OTHERWISE SPECIFIED)

1. RESISTANCE VALUES ARE IN OHMS, 1/6W, 5%.
2. CAPACITANCE VALUES ARE IN MICROFARADS/VOLTS.
3. NOT SHOWN, PINS 6 & 7 OF T1 ALSO CONNECT TO GROUND.

TVM

TVM BOARD (MXBK-2906)
T.V. Monitor Module Main Assy.

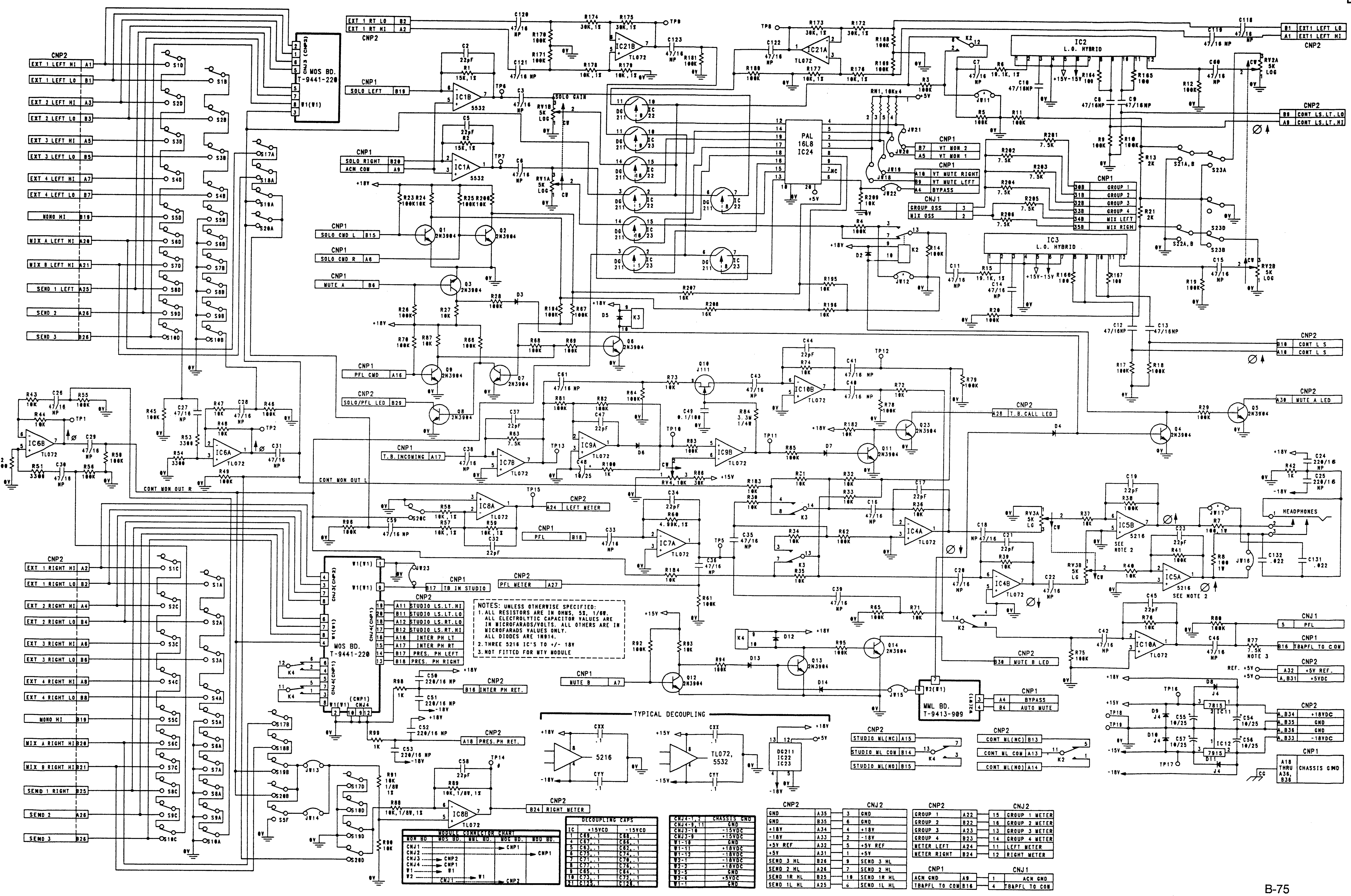


▨ SOLDER SIDE
■ COMPONENT SIDE

Applied Board No.	T-9414-004-1, -2	T-9414-004-3
Jumpers that have been soldered.	JW22 IC24-6 —— W2-3	——
	JW24 IC24-7 —— IC24-10	←

REFERENCE DESIGNATORS CONTROLS AND INDICATORS

RV1	SOLO
RV2	MONITOR
RV3	🎧
S1 thru S4	EXT
S6	MIX A (CONTROL ROOM)
S7	MIX B (CONTROL ROOM)
S8	S1
S9	S2
S10	S3
S17	MIX A (METER)
S18	MIX B (METER)
S19	SEL
S20	Ø
S21	MONO
S22	MUTE R
S23	MUTE


CNP2
EXT 1 LEFT HI A1
EXT 1 LEFT LO B1
EXT 2 LEFT HI A3
EXT 2 LEFT LO B3
EXT 3 LEFT HI A5
EXT 3 LEFT LO B5
EXT 4 LEFT HI A7
EXT 4 LEFT LO B7
MONO HI B19
MIX A LEFT HI A20
MIX B LEFT HI A21
SEND 1 LEFT A25
SEND 2 A26
SEND 3 B26
CNJ3 (CNP2) MOS BD. T-9441-220
EXT 1 RT LO B2
EXT 1 RT HI A2
SOLO LEFT B18
SOLO RIGHT B20
ACN COM A9
SOLO CMD L B15
SOLO CMD R A8
MUTE A B6
PFL CMD A16
SOLO/PFL LED B29
SOLO GAIN
PAL 16L8 IC24
IC2 L.O. HYBRID
IC3 L.O. HYBRID
VT MON 2 B7
VT MON 1 A5
VT MUTE RIGHT A10
VT MUTE LEFT B9
BYPASS A4
GROUP OSS 3
MIX OSS 2
GROUP 1 30B
GROUP 2 31B
GROUP 3 32B
GROUP 4 33B
MIX LEFT 34B
MIX RIGH 35B
EXT1 LEFT LO B1
EXT1 LEFT HI A1
CONT LS.LT.LO B8
CONT LS.LT.HI A9
CONT L S B10
CONT L S A10
MUTE A LED A30
T.B.CALL LED A28
CONT MON OUT L
CONT MON OUT R
T.B.INCOMING A17
LEFT METER A24
PFL B18
HEADPHONES
EXT 1 RIGHT HI A2
EXT 1 RIGHT LO B2
EXT 2 RIGHT HI A4
EXT 2 RIGHT LO B4
EXT 3 RIGHT HI A6
EXT 3 RIGHT LO B6
EXT 4 RIGHT HI A8
EXT 4 RIGHT LO B8
MONO HI B19
MIX A RIGHT HI B20
MIX B RIGHT HI B21
SEND 1 RIGHT B25
SEND 2 A26
SEND 3 B26
MOS BD. T-9441-220
TB IN STUDIO B17
PFL METER A27
STUDIO LS.LT.HI A11
STUDIO LS.LT.LO B11
STUDIO LS.RT.LO A12
STUDIO LS.RT.HI B12
INTER PH LT A16
INTER PH RT A17
PRES. PH LEFT B17
PRES. PH RIGHT B18
INTER PH RET. B16
PRES.PH RET. A18
RIGHT METER B24
MUTE B A7
MUTE B LED B30
MWL BD. T-9413-909
BYPASS A4
AUTO MUTE B4
PFL 5
TB&PFL TO COM B16
+5V REF. A32
+5VDC A,B31
+18VDC A,B34
GND A,B35
GND A,B36
-18VDC A,B33
CHASSIS GND A18 THRU A36, B36
STUDIO ML(NC) A15
STUDIO ML COM B14
STUDIO ML(NO) B15
CONT ML(NC) B13
CONT ML COM A13
CONT ML(NO) A14
TYPICAL DECOUPLING
5216
TL072, 5532
DG211 IC22 IC23
SEE NOTE 2
NOTE 3

NOTES: UNLESS OTHERWISE SPECIFIED:
1. ALL RESISTORS ARE IN OHMS, 5%, 1/8W.
ALL ELECTROLYTIC CAPACITOR VALUES ARE IN MICROFARADS/VOLTS. ALL OTHERS ARE IN MICROFARADS VALUES ONLY.
ALL DIODES ARE 1N914.
2. THREE 5216 IC'S TO +/- 18V
3. NOT FITTED FOR MTV MODULE

MODULE CONNECTOR CHART

MON BD	MOS BD.	MML BD.	MOG BD.	MOD BD.
CNJ1			CNP1	
CNJ2				CNP1
CNJ3	CNP2			
CNJ4	CNP1			
W1	W1			
W2		W1		
	CNJ1		CNP2	

DECOUPLING CAPS		
IC	+15VCD	-15VCD
1	C69, .1	C68, .1
4	C67, .1	C66, .1
5	C63, .1	C62, .1
6	C75, .1	C74, .1
7	C71, .1	C70, .1
8	C77, .1	C76, .1
9	C65, .1	C64, .1
10	C73, .1	C72, .1
21	C125, .1	C126, .1

CNJ4-1,2	CHASSIS GND
CNJ4-9,11	GND
CNJ3-10	-15VDC
CNJ3-9	+15VDC
W1-10	GND
W1-11	+18VDC
W1-12	-18VDC
W2-1	-18VDC
W2-2	+18VDC
W2-5	GND
W2-6	+5VDC
W1-1	GND

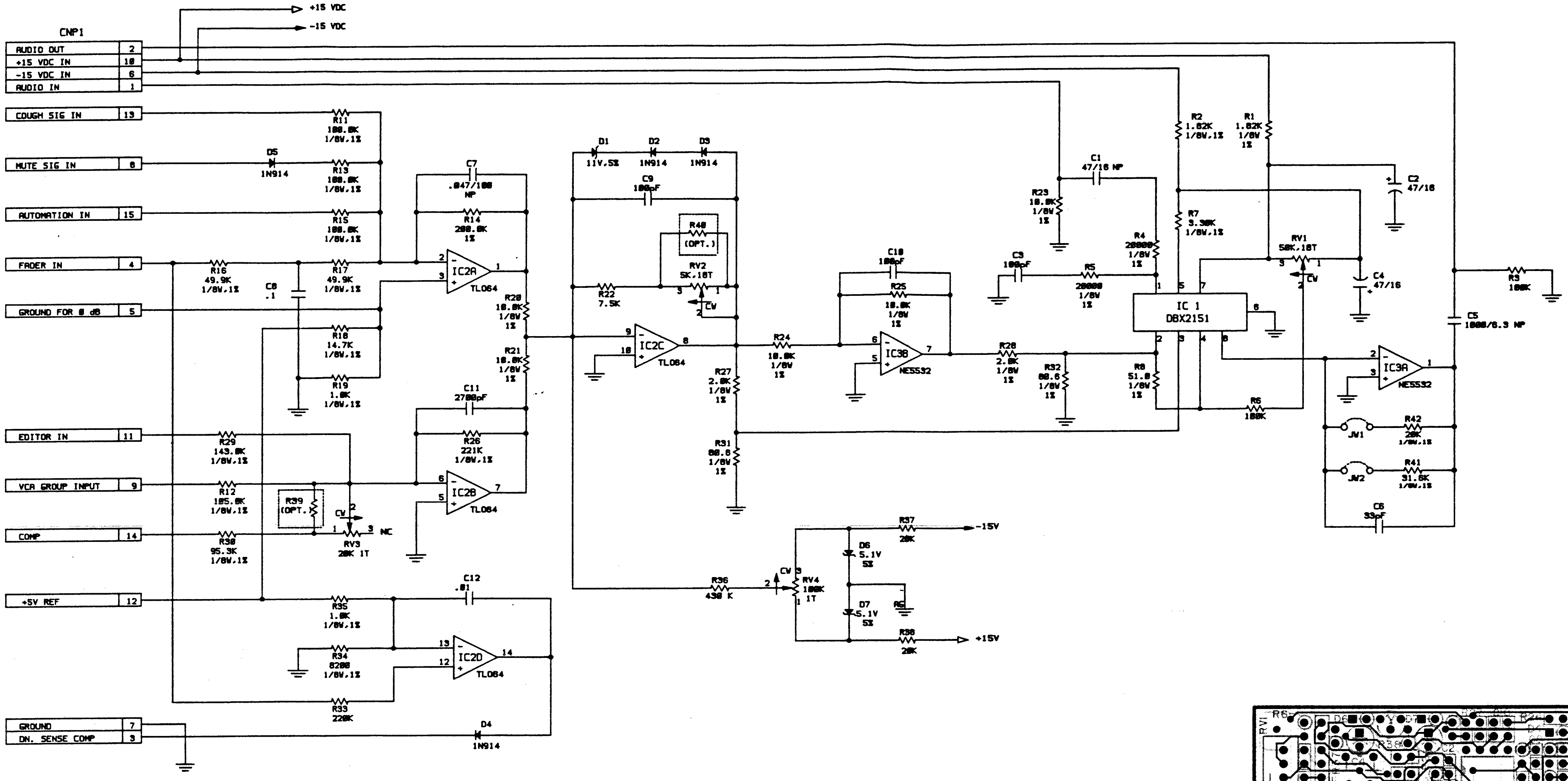
CNP2		CNJ2	
GND	A35	3	GND
GND	B35	6	GND
+18V	A34	4	+18V
-18V	A33	2	-18V
+5V REF	A32	5	+5V REF
+5V	A31	1	+5V
SEND 3 HL	B26	9	SEND 3 HL
SEND 2 HL	A26	7	SEND 2 HL
SEND 1R HL	B25	10	SEND 1R HL
SEND 1L HL	A25	6	SEND 1L HL

CNP2		CNJ2	
GROUP 1	A22	15	GROUP 1 METER
GROUP 2	B22	16	GROUP 2 METER
GROUP 3	A23	13	GROUP 3 METER
GROUP 4	B23	14	GROUP 4 METER
METER LEFT	A24	11	LEFT METER
METER RIGHT	B24	12	RIGHT METER

CNP1		CNJ1	
ACN GND	A9	1	ACN GND
TB&PFL TO COM	B16	4	TB&PFL TO COM

VCA

VCA BOARD (MXBK-2901/2901E/2902/2902E/2904/2904E/2908/2909/2909E)
Voltage Control Amplifier

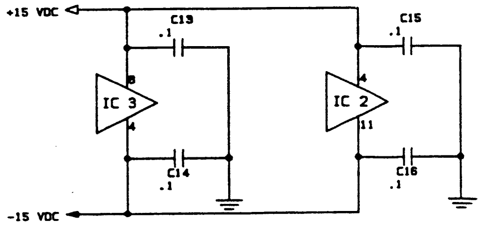


CNP1
AUDIO OUT 2
+15 VDC IN 10
-15 VDC IN 6
AUDIO IN 1
COUGH SIG IN 13
MUTE SIG IN 8
AUTOMATION IN 15
FADER IN 4
GROUND FOR 0 dB 5
EDITOR IN 11
VCA GROUP INPUT 9
COMP 14
+5V REF 12
GROUND 7
DN. SENSE COMP 3
+15 VDC
-15 VDC
IC2A TL084
IC2B TL084
IC2C TL084
IC2D TL084
IC3A NE5532
IC3B NE5532
IC 1 DBX2151
D1 11V.5%
D2 1N914
D3 1N914
D4 1N914
D5 1N914
D6 5.1V 5%
D7 5.1V 5%
RV1 50K.10T
RV2 5K.10T
RV3 20K 1T
RV4 100K 1T
R39 (OPT.)
R40 (OPT.)
CV
NC
JW1
JW2
-15V
+15V

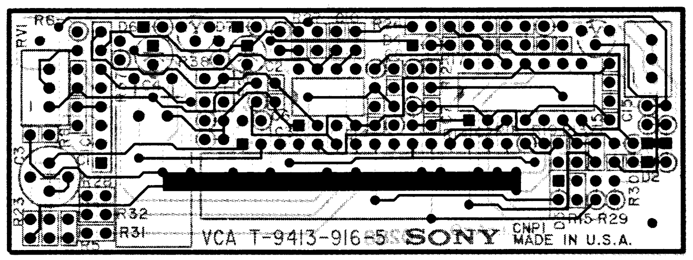
HIGHEST REFERENCE DESIGNATORS USED					
C16	CNP1	B3	IC3		R42
RV4					

NOTES: (UNLESS OTHERWISE SPECIFIED)

1. ALL RESISTANCE VALUES ARE IN OHMS, 1/8W, 5%.
2. ALL ELECTROLYTIC CAPACITOR VALUES ARE IN MICROFARADS/VOLTS, ALL OTHER VALUES ARE IN MICROFARADS ONLY.



+15 VDC
-15 VDC
C13 .1
C14 .1
C15 .1
C16 .1
IC 3
IC 2
8
4
4
11



R6
RV1
R23
C3
R32
R31
R29
VCA T-9413-916-5
SONY
CNP1
MADE IN U.S.A.

▨ SOLDER SIDE
■ COMPONENT SIDE

SECTION C

REPLACEABLE PARTS

PARTS ORDERING INFORMATION

Parts Standardization

Because of constantly ongoing parts standardization or parts improvement programs, repair parts supplied from Sony Parts Center may not be identical to the parts being replaced.

The replacement parts listed in this manual are authorized Sony parts and are compiled from the most recent Sony standard parts data available at the time of publication. For current information regarding parts changes, refer to appropriate Sony Service Bulletins and/or Manual Supplements.

Service Codes

Service codes are assigned to all replacement parts, and they appear in the **Serv. Code** column of the Parts List.:

S: This part is stocked at Sony Parts Center and is readily available.

O: This part may not be in stock. An order for this part will be accepted, but delivery is subject to long lead-time.

U: This item is not a replaceable part. It appears in the parts list for reference only.

Critical Parts ⚠

Parts flagged with ⚠ are critical to safe operation. Replacement with the exact same part as listed is mandatory.

AEB BOARD (MXP-2916,2916P,2926,2926P,2936,2936P ONLY)

Ref. No.	Parts No.	SP	Description
–	T-9486-090-A	O	PWA, AEB

(This assembly includes the following parts.)

–	7-621-759-85	S	+PSW, 2.6x12
–	7-622-207-05	S	N 2.6, TYPE 2
–	7-682-648-01	S	SCREW +PS 3x8
–	7-684-023-04	S	N 3, TYPE 2
CNJ1	T-9413-692-1	O	CN, 9P RECEPTACLE
CNJ2	T-9413-693-1	O	CN, 15P PLUG
CNJ3	T-9413-691-1	O	CONNECTOR 50P, PC MOUNT CHAMP
CNJ4	T-9413-694-1	O	CN, 25P PLUG
CNJ5	1-564-490-11	S	PIN, CONNECTOR 10P
CNJ6	1-564-238-11	O	PIN, CONNECTOR 30P
CNJ7	1-564-492-11	O	PIN, CONNECTOR 20P

AEF BOARD (MXBK-2901,2901E,2904,2904E,2909,2909E ONLY)

–	T-9483-710-1	O	COMPLETE PCB, AEF

(This assembly includes the following parts.)

Ref. No.	Parts No.	SP	Description			
–	T-9456-419-1	O	LABEL, SERVICE, AEF			
–	1-526-653-21	S	SOCKET, IC (DP) 14P			
–	1-526-654-21	O	SOCKET, IC (DP) 16P			
C1 to C5	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
CNP1	T-9414-203-1	O	CN, SIP, PCMT, R/A 20P			
D1	8-719-991-40	S	DIODE 1N914			
D2 to D5	8-719-100-30	S	DIODE RD5.1EB2			
IC1	T-9416-048-1	S	IC TL064BCN			
IC2	8-759-937-39	S	IC DG211CJ			
JW1 to JW4						
	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-388-11	S	PIN, CONNECTOR 2P			
Q1 to Q4	8-729-139-04	S	TRANSISTOR 2N3904			
R1	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R2	1-218-202-51	S	RES, METAL	4.99K	1%	1/6W
R3	T-9411-958-1	S	RES, METAL	976K	1%	1/8W
R4	1-218-202-51	S	RES, METAL	4.99K	1%	1/6W
R5	T-9411-958-1	S	RES, METAL	976K	1%	1/8W
R6	1-247-838-51	S	RES, CARBON	2K	5%	1/4W
R7	1-249-425-51	S	RES, CARBON	4.7K	5%	1/4W
R8	1-249-425-51	S	RES, CARBON	4.7K	5%	1/4W
R9	1-247-828-51	S	RES, CARBON	750	5%	1/4W
R10	1-218-225-51	S	RES, METAL	73.2K	1%	1/6W
R11	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R12	1-247-819-51	S	RES, CARBON	330	5%	1/4W

Ref. No.	Parts No.	SP	Description			
R13	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R14	1-247-838-51	S	RES, CARBON	2K	5%	1/4W
R15	1-247-871-51	S	RES, CARBON	47K	5%	1/4W
R16	1-247-871-51	S	RES, CARBON	47K	5%	1/4W
R17	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R18	1-247-838-51	S	RES, CARBON	2K	5%	1/4W
R19	1-247-819-51	S	RES, CARBON	330	5%	1/4W

AMB BOARD (MXP-2916,2916P,2926,2926P,2936,2936P ONLY)

–	T-9481-881-1	O	PWA, AMB

(This assembly includes the following parts.)

–	T-9452-953-1	O	BRACKET, STOPPER TOP TOUCH LOCK
–	1-417-157-11	S	BALUM
–	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P
CNJ1 to CNJ10	T-9413-466-1	O	CN, RECT, 45P, PC MT
CNJ11	T-9413-254-1	O	CONNECTOR, EDGE 72P
CNJ13 to CNJ20	T-9413-254-1	O	CONNECTOR, EDGE 72P
CNJ22	T-9413-254-1	O	CONNECTOR, EDGE 72P
CNJ25	1-564-490-11	S	PIN, CONNECTOR 10P
JW1	1-565-396-11	O	PIN, CONNECTOR 10P

AMC BOARD (MXP-2916,2916P,2926,2926P,2936,2936P ONLY)

–	T-9482-881-1	O	PWA, AMC

(This assembly includes the following parts.)

–	T-9413-471-1	O	CN, 4P, TERM. BLOCK
–	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P
–	T-9452-953-1	O	BRACKET, STOPPER TOP TOUCH LOCK
C21	T-9410-677-1	S	CAPACITOR
CNJ1 to CNJ10	T-9413-466-1	O	CN, RECT, 45P, PC MT
CNJ11	T-9413-254-1	O	CONNECTOR, EDGE 72P
CNJ13 to CNJ20	T-9413-254-1	O	CONNECTOR, EDGE 72P
CNJ22	T-9413-254-1	O	CONNECTOR, EDGE 72P
CNJ25	1-564-490-11	S	PIN, CONNECTOR 10P
JW1	1-565-396-11	O	PIN, CONNECTOR 10P
L1 to L20	1-417-157-11	S	BALUM

BMB BOARD (MXP-2916,2916P,2926,2926P,2936,2936P ONLY)

Ref. No.	Parts No.	SP	Description
–	T-9481-882-1	O	PWA, BMB

(This assembly includes the following parts.)

Ref. No.	Parts No.	SP	Description
CNJ1	1-560-190-11	O	CONNECTOR 20P
CNJ2	1-560-190-11	O	CONNECTOR 20P
CNJ3	T-9413-254-1	O	CONNECTOR, EDGE 72P
to CNJ12			
CNJ13	T-9413-808-1	S	CONNECTOR,R.A.,130 PIN, FEMALE

CLK BOARD (MXP-2916,2916P,2926,2926P,2936,2936P ONLY)

Ref. No.	Parts No.	SP	Description
–	T-9483-188-1	O	CLK COMPLE

(This assembly includes the following parts.)

Ref. No.	Parts No.	SP	Description			
–	T-9411-074-1	S	OPEN FRAME SOCKET 8P			
–	T-9411-075-1	S	OPEN FRAME SOCKET 14P			
–	T-9411-076-1	S	OPEN FRAME SOCKET 16P			
–	T-9411-077-1	S	OPEN FRAME SOCKET 18P			
–	T-9413-327-1	O	LITHIUM BATTERY			
–	T-9413-595-1	O	OPEN FRAME SOCKETS			
C1	1-123-621-11	S	CAP, ELECT	10	20%	25V
C2	1-123-621-11	S	CAP, ELECT	10	20%	35V
C3	1-123-355-11	S	CAP, ELECT	4.7	20%	50V
C4	T-9411-300-1	S	CAP, CERAMIC	1500P	20%	100V
C5	T-9411-228-1	S	CAP, VARIABLE	4-20P		
C6	T-9411-280-1	S	CAP, CERAMIC	33P	10%	100V
C7	T-9411-280-1	S	CAP, CERAMIC	33P	10%	100V
C8	T-9411-323-1	S	CAP, CERAMIC	0.1	20%	100V
C9	1-123-611-11	S	CAP, ELECT	1	20%	50V
C10	1-123-335-11	S	CAP, ELECT	330	20%	25V
C11	1-123-335-11	S	CAP, ELECT	330	20%	25V
C14	1-123-308-11	S	CAP, ELECT	220	20%	10V
C15	1-123-308-11	S	CAP, ELECT	220	20%	10V
C18	T-9411-323-1	S	CAP, CERAMIC	0.1	20%	100V
to C23						
C24	1-123-335-11	S	CAP, ELECT	330	20%	25V
CNJ2	1-564-491-11	O	PIN, CONNECTOR 16P			
CNP1	1-560-885-11	O	CONNECTOR 20P			
CNP2	1-560-885-11	O	CONNECTOR 20P			
CNP3	T-9413-623-1	S	DIP SOCKET CONNECTOR 16P			
D1	8-719-991-40	S	DIODE 1N914			
D2	T-9410-661-1	S	DIODE 1N5238			
D3	T-9412-221-1	S	DIODE ZENER 5%, 1N5234			
D4	8-719-991-40	S	DIODE 1N914			
to D8						
IC1	8-759-202-86	S	IC TC74HC123P			
IC2	T-9413-591-1	S	IC UPD199OAC			
IC3	T-9413-592-1	S	IC UPD75CG28E			
IC4	8-759-909-33	S	IC LM311P			
IC5	8-759-916-14	S	IC SN74HC04AN			
IC6	T-9413-593-1	S	IC MM74C922N			
IC7	8-759-032-86	S	IC MC74HC139AN			
JW1	1-566-385-11	S	PIN, CONNECTOR 2P			
JW2	1-566-385-11	S	PIN, CONNECTOR 2P			
JW3	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
L1	1-421-329-11	S	COIL, CHOKE			
L3	1-421-329-11	S	COIL, CHOKE			
Q2	8-729-113-08	S	TRANSISTOR 2N3906			
R1	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R2	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R3	1-247-831-51	S	RES, CARBON	1K	5%	1/4W
R4	1-210-821-11	S	RES, CARBON	2.2	5%	1/4W
R5	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R6	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R7	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R8	1-247-835-51	S	RES, CARBON	1.5K	5%	1/4W
R9	1-246-517-15	S	RES, CARBON	68K	5%	1/4W
R10	1-247-843-51	S	RES, CARBON	3.3K	5%	1/4W
to R12						
R17	1-247-867-51	S	RES, CARBON	33K	5%	1/4W
R18	1-247-869-51	S	RES, CARBON	39K	5%	1/4W
R19	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R20	1-247-867-51	S	RES, CARBON	33K	5%	1/4W
R21	1-247-862-51	S	RES, CARBON	20K	5%	1/4W
R22	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R23	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R24	1-247-843-51	S	RES, CARBON	3.3K	5%	1/4W
R25	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
to R27						
R28	1-247-783-51	S	RES, CARBON	10	5%	1/4W
RN1	T-9412-084-1	S	RES, NETWORK SIP 100K			
to RN4						
S1	T-9413-594-1	S	KEY SW MINI.			
to S17						
Y1	T-9411-227-1	S	CRYSTAL, 32.768KHZ			

CMM BOARD (MXBK-2917 ONLY)

Ref. No.	Parts No.	SP	Description
–	T-9486-052-A	O	MOUNTED PCB, CMM

(This assembly includes the following parts.)

Ref. No.	Parts No.	SP	Description			
–	T-9456-443-1	O	LABEL, SERVICE, CMM			
–	1-526-652-21	S	SOCKET, IC (DP) 8P			
–	1-526-653-21	S	SOCKET, IC (DP) 14P			
–	1-526-654-21	S	SOCKET, IC (DP) 16P			
–	4-922-102-01	S	NUT (KF52-M3ET), PEM			
C1	1-123-621-41	S	CAP, ELECT	10	20%	25V
to C4						
C5	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C6	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C7	1-162-745-21	S	CAP, CERAMIC	47P	5%	50V
C8	1-124-631-11	S	CAP, ELECT	47	20%	16V

Ref. No.	Parts No.	SP	Description			
C9	1-123-611-41	S	CAP, ELECT	1	20%	50V
C10	1-124-631-11	S	CAP, ELECT	47	20%	16V
C11	1-162-790-21	S	CAP, CERAMIC	4700P	10%	50V
C12	1-123-333-11	S	CAP, ELECT	100	20%	25V
C13	1-123-333-11	S	CAP, ELECT	100	20%	25V
C14	1-124-631-11	S	CAP, ELECT	47	20%	16V
C15	1-162-747-21	S	CAP, CERAMIC	56P	5%	50V
C16	1-124-631-11	S	CAP, ELECT	47	20%	16V
C17	1-108-802-71	S	CAP, MYLAR	0.0068	10%	50V
C18	1-130-785-11	S	CAP, FILM	0.47	5%	100V
C19	1-124-631-11	S	CAP, ELECT	47	20%	16V
C20	1-124-631-11	S	CAP, ELECT	47	20%	16V
C21	1-108-634-61	S	CAP, MYLAR	0.047	10%	100V
C22	1-130-782-11	S	CAP, FILM	0.27	5%	100V
C23	1-130-779-11	S	CAP, FILM	0.15	5%	100V
C24	1-108-637-61	S	CAP, MYLAR	0.082	10%	100V
C25 to C32	1-124-631-11	S	CAP ELECT	47	20%	16V
C33	1-107-026-11	S	CAP, MICA	5.1P	0.5P	500V
C34	1-107-026-11	S	CAP, MICA	5.1P	0.5P	500V
C35	T-9410-960-1	S	CAP, FILM	0.22	5%	100V
C36	T-9411-001-1	S	CAP, MYLAR	0.022	5%	100V
C37	T-9410-989-1	S	CAP, MYLAR	0.0022	5%	100V
C38	1-123-307-11	S	CAP, ELECT	100	20%	10V
C39	1-162-745-21	S	CAP, CERAMIC	47P	5%	50V
C40	1-107-026-11	S	CAP, MICA	5.1P	0.5P	500V
C41	T-9410-960-1	s	CAP, FILM	0.22	5%	100V
C42	T-9411-001-1	S	CAP, MYLAR	0.022	5%	100V
C43	T-9410-989-1	S	CAP, MYLAR	0.0022	5%	100V
C44	1-124-631-11	S	CAP, ELECT	47	20%	16V
C45	1-108-626-61	S	CAP, MYLAR	0.01	10%	100V
C46	1-123-333-11	S	CAP, ELECT	100	20%	25V
C47	1-123-611-41	S	CAP, ELECT	1	20%	50V
C48	T-9410-960-1	S	CAP, FILM	0.22	5%	100V
C49	T-9410-960-1	9	CAP, FILM	0.22	5%	100V
C5O	1-124-631-11	S	CAP, ELECT	47	20%	16V
C51	1-130-785-11	S	CAP, FILM	0.47	5%	100V
C52	1-124-631-11	S	CAP, ELECT	47	20%	16V
C53	1-162-671-11	S	CAP, CERAMIC	22P	5%	50V
C54	1-124-631-11	S	CAP, ELECT	47	20%	16V
C55 to C72	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C73	1-124-631-11	S	CAP, ELECT	47	20%	16V
C74	1-123-611-41	S	CAP, ELECT	1	20%	50V
C75	1-162-671-11	S	CAP, CERAMIC	22P	5%	50V
C76	1-162-671-11	S	CAP, CERAMIC	22P	5%	50V
CNJ1	1-560-300-11	O	POST HEADER (IL CONNECTOR) 3P			
D1 to D4	8-719-940-03	S	DIODE 1N4004			
D5 to D7	8-719-911-19	S	DIODE 1SS119			
D8	8-719-100-12	S	DIODE RD2.7EB1			
D9	8-719-100-12	S	DIODE RD2.7EB1			
D10	T-9410-342-1	S	DIODE, ZENER, 1N5243, 5%			
D11	8-719-911-19	S	DIODE 1SS119			
D12	8-719-100-30	S	DIODE RD5.1EB2			
D13 to D16	8-719-911-19	S	DIODE 1SS119			

Ref. No.	Parts No.	SP	Description			
IC1	8-759-900-72	S	IC NE5532P			
IC2	8-759-990-72	S	IC TL072CP			
IC3	8-759-990-72	S	IC TL072CP			
IC4	8-759-900-72	S	IC NE5532P			
IC5	8-759-990-72	S	IC TL072CP			
IC6	8-759-700-81	S	IC NJM555D			
IC7	8-759-990-72	S	IC TL072CP			
IC8	8-759-990-72	S	IC TL072CP			
IC9	8-759-179-15	S	IC UPC7915H			
IC10	8-759-171-15	S	IC UPC7815H			
IC11	8-759-990-04	S	IC TL074CN			
IC12	8-759-937-39	S	IC DG211CJ			
IC13	8-759-990-72	S	IC TL072CP			
K1	1-515-670-11	S	RELAY			
Q1	8-729-218-43	S	TRANSISTOR 2SK184-GR			
Q2	8-729-139-04	S	TRANSISTOR 2N3904			
Q3	8-729-113-08	S	TRANSISTOR 2N3906			
R1	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R2	1-247-795-51	S	RES, CARBON	33	5%	1/4W
R3	1-247-887-51	S	RES, CARBON	220K	5%	1/4W
R4 to R6	1-247-831-51	S	RES, CARBON	1K	5%	1/4W
R7	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R8	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R9	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R10	1-247-863-51	S	RES, CARBON	22K	5%	1/4W
R11	1-247-831-51	S	RES, CARBON	1K	5%	1/4W
R12	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R13	1-214-568-11	S	RES, METAL	3K	1%	1/8W
R14	1-214-557-11	S	RES, METAL	1K	1%	1/8W
R15	1-218-193-51	S	RES, METAL	301	1%	1/6W
R16	1-247-862-51	S	RES, CARBON	20K	5%	1/4W
R17	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R18	1-214-568-11	S	RES, METAL	3K	1%	1/8W
R19	1-247-831-51	S	RES, CARBON	1K	5%	1/4W
R20	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R21	1-247-836-51	S	RES, CARBON	1.6K	5%	1/4W
R22	1-247-839-51	S	RES, CARBON	2.2K	5%	1/4W
R23	1-247-887-51	S	RES, CARBON	220K	5%	1/4W
R24	1-247-838-51	S	RES, CARBON	2K	5%	1/4W
R25	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R26	1-247-831-51	S	RES, CARBON	1K	5%	1/4W
R27	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R28	1-247-859-91	S	RES, CARBON	15K	5%	1/4W
R29	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R30	1-246-473-15	S	RES, CARBON	1K	5%	1/4W
R31 to R38	1-247-831-51	S	RES, CARBON	1K	5%	1/4W
R39	1-247-865-51	S	RES, CARBON	27K	5%	1/4W
R40 to R42	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R43	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R44	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R45 to R50	1-214-573-11	S	RES, METAL	4.7K	1%	1/8W
R51 to R54	1-214-583-11	S	RES, METAL	12K	1%	1/8W
R55	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R56	1-247-879-51	S	RES, CARBON	100K	5%	1/4W

Ref. No.	Parts No.	SP	Description			
R57	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R58	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R59 to R61	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R62	1-247-846-51	S	RES, CARBON	4.3K	5%	1/4W
R63	1-247-881-51	S	RES, CARBON	120K	5%	1/4W
R64	1-247-850-51	S	RES, CARBON	6.2K	5%	1/4W
R65	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R66	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R67	1-247-881-51	S	RES, CARBON	120K	5%	1/4W
R68	1-247-846-51	S	RES, CARBON	4.3K	5%	1/4W
R69 to R72	1-249-437-51	S	RES, CARBON	47K	5%	1/4W
R73	1-247-866-51	S	RES, CARBON	10K	5%	1/4W
R74	1-247-865-51	S	RES, CARBON	27K	5%	1/4W
R75	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R76	1-247-838-51	S	RES, CARBON	2K	5%	1/4W
R77	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R78	1-247-887-51	S	RES, CARBON	220K	5%	1/4W
R79	1-247-887-51	S	RES, CARBON	220K	5%	1/4W
R80	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R81	1-247-870-51	S	RES, CARBON	43K	5%	1/4W
R82	1-247-870-51	S	RES, CARBON	43K	5%	1/4W
R83	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R84	1-247-862-51	S	RES, CARBON	20K	5%	1/4W
R85	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R86	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R87	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R88	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R89 to R99	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R100	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R101	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R102	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R103 to R106	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R107	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R108	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R109	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R110	1-247-802-51	S	RES, CARBON	62	5%	1/4W
R111	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
RV1	T-9413-524-1	S	POTENTIOMETER, MINI 5K			
RV2	T-9413-632-1	S	POTENTIOMETER, MINI 100K/100K			
RV3	T-9413-527-1	S	POTENTIOMETER, MINI 100K			
RV4	1-224-940-11	S	RES, ADJ, METAL FILM 10K			
RV5	1-230-846-11	S	RES, ADJ, METAL FILM 100K			
RV6	1-226-699-11	S	RES, ADJ, CERMET 50K			
RV7	1-224-941-11	S	RES, ADJ, METAL FILM 20K			
S1 to S7	1-571-208-11	S	SWITCH, PUSH (7 KEY)			
S8 to S17	1-571-209-11	S	SWITCH, PUSH (10 KEY)			
S18 to S22	1-571-206-11	S	SWITCH, PUSH (5 KEY)			
T1	T-9413-494-1	S	TRANSFORMER			
T2	T-9413-575-4	S	TRANSFORMER			
TH1	1-535-693-11	S	BTH RA25 THERMISTOR			

DMB BOARD (MXP-2916,2916P,2926,2926P,2936,2936P ONLY)

Ref. No.	Parts No.	SP	Description			
–	T-9483-190-1	O	DMB COMPLE			

(This assembly includes the following parts.)

C1 to C6	T-9411-323-1	S	CAP, CERAMIC	0.1	20%	100V
C7	T-9413-584-1	S	CAP, ELECT	100		6V
C8	T-9413-584-1	S	CAP, ELECT	100		6V
CNJ1	1-564-491-11	O	PIN, CONNECTOR 16P			
D1	8-719-991-40	S	DIODE 1N914			
DS1 to DS5	T-9414-194-1	S	LED BAR ARRAY			
DS6	T-9413-461-1	O	INDICATOR PANEL			
IC1 to IC5	T-9411-998-1	S	LED DRIVER IR2432			
R1 to R5	1-247-875-51	S	RES, CARBON	68K	5%	1/4W
R6 to R10	1-247-843-51	S	RES, CARBON	3.3K	5%	1/4W
R11	1-247-857-51	S	RES, CARBON	12K	5%	1/4W
R12	1-244-825-11	S	RES, CARBON	10	5%	1/2W
R13	1-244-825-11	S	RES, CARBON	10	5%	1/2W
RV1 to RV5	1-228-459-11	S	RES, ADJ, CERMET 10K			
W1	T-9411-974-1	O	HDR SINGLE 20P			
W2	T-9411-974-1	O	HDR SINGLE 20P			

DYM BOARD (MXBK-2903 ONLY)

–	T-9486-024-A	O	MOUNTED PCB, DYM			

(This assembly includes the following parts.)

–	T-9456-442-1	O	LABEL, SERVICE, DYM			
–	T-9411-077-1	S	OPEN FRAME SOCKET 18P			
–	T-9451-535-1	S	NUT HEX 4-40			
–	T-9452-956-1	S	STANDARD BINDING HEAD SCREW			
–	1-526-652-21	S	SOCKET, IC (DP) 8P			
–	1-526-653-21	S	SOCKET, IC (DP) 14P			
–	1-526-657-21	S	SOCKET, IC (DP) 22P			
–	4-922-102-01	S	NUT (KFS2-M3ET), PEM			
–	4-922-117-01	O	HEAT SINK (DYN)			
–	7-688-003-11	S	W3, MIDDLE			
C1 to C4	1-123-329-11	S	CAP, ELECT	10	20%	25V
C33	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C34	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C103	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C104	1-123-329-11	S	CAP, ELECT	10	20%	25V
C105	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C106	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C107	1-123-329-11	S	CAP, ELECT	10	20%	25V

Ref. No.	Parts No.	SP	Description			
C108	1-126-611-41	S	CAP, ELECT	1	20%	50V
C109	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C110	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C111	1-130-782-11	S	CAP, FILM	0.27	5%	100V
C112 to C127	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C128	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C129	1-162-745-21	S	CAP, CERAMIC	47P	5%	50V
C130 to C132	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C149	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C203	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C204	1-123-329-11	S	CAP, ELECT	10	20%	25V
C205	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C206	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C207	1-123-329-11	S	CAP, ELECT	10	20%	25V
C208	1-126-611-41	S	CAP, ELECT	1	20%	50V
C209	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C210	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C211	1-130-782-11	S	CAP, FILM	0.27	5%	100V
C212 to C227	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C228	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C229	1-162-745-21	S	CAP, CERAMIC	47P	5%	50V
C230 to C232	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C249	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C303	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C304	1-123-329-11	S	CAP, ELECT	10	20%	25V
C305	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C306	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C307	1-123-329-11	S	CAP, ELECT	10	20%	25V
C308	1-126-611-41	S	CAP, ELECT	1	20%	50V
C309	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C310	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C311	1-130-782-11	S	CAP, FILM	0.27	5%	100V
C312 to C327	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C328	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C329	1-162-745-21	S	CAP, CERAMIC	47P	5%	50V
C330 to C332	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C349	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C403	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C404	1-123-329-11	S	CAP, ELECT	10	20%	25V
C405	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C406	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C407	1-123-329-11	S	CAP, ELECT	10	20%	25V
C408	1-126-611-41	S	CAP, ELECT	1	20%	50V
C409	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C410	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C411	1-130-782-11	S	CAP, FILM	0.27	5%	100V
C412 to C427	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C428	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C429	1-162-745-21	S	CAP, CERAMIC	47P	5%	50V
C430 to C432	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C449	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
D1 to D4	8-719-940-03	S	DIODE 1N4004			

Ref. No.	Parts No.	SP	Description
D5	8-719-911-19	S	DIODE 1SS119
D101 to D103	8-719-911-19	S	DIODE 1SS119
D104	8-719-110-42	S	DIODE RD15ESB3
D105	8-719-911-19	S	DIODE 1SS119
D106	8-719-911-19	S	DIODE 1SS119
D201 to D203	8-719-911-19	S	DIODE 1SS119
D204	8-719-110-42	S	DIODE RD1SESB3
D205	8-719-911-19	S	DIODE 1SS119
D206	8-719-911-19	S	DIODE 1SS119
D301 to D303	8-719-911-19	S	DIODE 1SS119
D304	8-719-110-42	S	DIODE RD15ESB3
D305	8-719-911-19	S	DIODE 1SS119
D306	8-719-911-19	S	DIODE 1SS119
D401 to D403	8-719-911-19	S	DIODE 1SS119
D404	8-719-110-42	S	DIODE RD15ESB3
D405	8-719-911-19	S	DIODE 1SS119
D406	8-719-911-19	S	DIODE 1SS119
DS101 to DS103	8-719-812-41	S	DIODE TLR124
DS104	8-719-948-19	S	DIODE GL112H9
DS201 to DS203	8-719-812-41	S	DIODE TLR124
DS204	8-719-948-19	S	DIODE GL1129
DS301 to DS303	8-719-812-41	S	DIODE TLR124
DS304	8-719-948-19	S	DIODE GL112H9
DS401 to DS403	8-719-812-41	S	DIODE TLR124
DS404	8-719-948-19	S	DIODE GL112H9
IC1	8-759-179-15	S	IC UPC7915H
IC2	8-759-171-15	S	IC UPC7815H
IC3	8-759-990-04	S	IC TL074CN
IC101	8-759-990-72	S	IC TL072CP
IC102	8-759-946-41	S	IC IR2433
IC103 to IC108	8-759-990-72	S	IC TL072CP
IC109	T-9413-467-1	S	IC SM2110
IC110	T-9413-467-1	S	IC SM2110
IC201	8-759-990-72	S	IC TL072CP
IC202	8-759-946-41	S	IC IR2433
IC203 to IC208	8-759-990-72	S	IC TL072CP
IC209	T-9413-467-1	S	IC SM2110
IC210	T-9413-467-1	S	IC SM2110
IC301	8-759-990-72	S	IC TL072CP
IC302	8-759-946-41	S	IC IR2433
IC303 to IC308	8-759-990-72	S	IC TL072CP
IC309	T-9413-467-1	S	IC SM2110
IC310	T-9413-467-1	S	IC SM2110
IC401	8-759-990-72	S	IC TL072CP
IC402	8-759-946-41	S	IC IR2433
IC403 to IC408	8-759-990-72	S	IC TL072CP
IC409	T-9413-467-1	S	IC SM2110
IC410	T-9413-467-1	S	IC SM2110

Ref. No.	Parts No.	SP	Description			
Q1	8-729-304-92	S	TRANSISTOR 2SB649A-C			
Q101 to Q103	8-729-113-08	S	TRANSISTOR 2N3906			
Q201 to Q203	8-729-113-08	S	TRANSISTOR 2N3906			
Q301 to Q303	8-729-113-08	S	TRANSISTOR 2N3906			
Q401 to Q403	8-729-113-08	S	TRANSISTOR 2N3906			
R54	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R101	1-214-578-11	S	RES, METAL	7.5K	1%	1/8W
R102	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R103	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R104	1-247-883-51	S	RES, CARBON	150K	5%	1/4W
R105	1-247-901-51	S	RES, CARBON	820K	5%	1/4W
R106	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R107	1-218-225-51	S	RES, METAL	73.2K	1%	1/6W
R108	1-218-224-51	S	RES, METAL	61.9K	1%	1/6W
R109	1-214-592-11	S	RES, METAL	30K	1%	1/8W
R110	1-247-783-51	S	RES, CARBON	10	5%	1/4W
R111	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R112	1-247-815-51	S	RES, CARBON	220	5%	1/4W
R113	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R114	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R115	1-244-883-11	S	RES, CARBON	2.7K	5%	1/2W
R116	1-218-196-51	S	RES, METAL	2.21K	1%	1/6W
R117	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R118	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R119	1-214-561-11	S	RES, METAL	1.5K	1%	1/8W
R120	1-214-557-11	S	RES, METAL	1K	1%	1/8W
R121	1-218-217-51	S	RES, METAL	30.1K	1%	1/6W
R122	1-218-227-51	S	RES, METAL	133K	1%	1/6W
R123	1-218-217-51	S	RES, METAL	30.1K	1%	1/6W
R124	1-244-883-11	S	RES, CARBON	2.7K	5%	1/2W
R125	1-247-841-51	S	RES, CARBON	2.7K	5%	1/4W
R126	1-247-783-51	S	RES, CARBON	10	5%	1/4W
R127 to R130	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R131	1-247-831-51	S	RES, CARBON	1K	5%	1/4W
R132	1-247-831-51	S	RES, CARBON	1K	5%	1/4W
R133	1-218-217-51	S	RES, METAL	30.1K	1%	1/6W
R134	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R135	1-218-215-51	S	RES, METAL	26.7K	1%	1/6W
R136	1-218-219-51	S	RES, METAL	36.5K	1%	1/6W
R137	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R138	1-247-901-51	S	RES, CARBON	820K	5%	1/4W
R139	1-247-883-51	S	RES, CARBON	150K	5%	1/4W
R140	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R141	1-214-558-11	S	RES, METAL	1.1K	1%	1/8W
R142	1-214-578-11	S	RES, METAL	7.5K	1%	1/8W
R143	1-247-871-51	S	RES, CARBON	47K	5%	1/4W
R144	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R145	1-247-887-51	S	RES, CARBON	220K	5%	1/4W
R146	1-244-883-11	S	RES, CARBON	2.7K	5%	1/2W
R147	1-214-558-11	S	RES, METAL	1.1K	1%	1/8W
R148	1-218-284-51	S	RES, METAL	154	1%	1/6W
R149	1-214-557-11	S	RES, METAL	1K	1%	1/8W
R150	1-218-229-51	S	RES, METAL	162K	1%	1/6W
R151	1-247-784-51	S	RES, CARBON	11	5%	1/4W
R152	1-218-207-51	S	RES, METAL	8.06K	1%	1/6W
R153	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R201	1-214-578-11	S	RES, METAL	7.5K	1%	1/8W
R202	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R203	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R204	1-247-883-51	S	RES, CARBON	150K	5%	1/4W
R205	1-247-901-51	S	RES, CARBON	820K	5%	1/4W
R206	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R207	1-218-225-51	S	RES, METAL	73.2K	1%	1/6W
R208	1-218-224-51	S	RES, METAL	61.9K	1%	1/6W
R209	1-214-592-11	S	RES, METAL	30K	1%	1/8W
R210	1-247-783-51	S	RES, CARBON	10	5%	1/4W
R211	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R212	1-247-815-51	S	RES, CARBON	220	5%	1/4W
R213	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R214	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R215	1-244-883-11	S	RES, CARBON	2.7K	5%	1/2W
R216	1-218-196-51	S	RES, METAL	2.21K	1%	1/6W
R217	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R218	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R219	1-214-561-11	S	RES, METAL	1.5K	1%	1/8W
R220	1-214-557-11	S	RES, METAL	1K	1%	1/8W
R221	1-218-217-51	S	RES, METAL	30.1K	1%	1/6W
R222	1-218-227-51	S	RES, METAL	133K	1%	1/6W
R223	1-218-217-51	S	RES, METAL	30.1K	1%	1/6W
R224	1-244-883-11	S	RES, CARBON	2.7K	5%	1/2W
R225	1-247-841-51	S	RES, CARBON	2.7K	5%	1/4W
R226	1-247-783-51	S	RES, CARBON	10	5%	1/4W
R227 to R230	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R231	1-247-831-51	S	RES, CARBON	1K	5%	1/4W
R232	1-247-831-51	S	RES, CARBON	1K	5%	1/4W
R233	1-218-217-51	S	RES, METAL	30.1K	1%	1/6W
R234	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R235	1-218-215-51	S	RES, METAL	26.7K	1%	1/6W
R236	1-218-219-51	S	RES, METAL	36.5K	1%	1/6W
R237	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R238	1-247-901-51	S	RES, CARBON	820K	5%	1/4W
R239	1-247-883-51	S	RES, CARBON	150K	5%	1/4W
R240	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R241	1-214-558-11	S	RES, METAL	1.1K	1%	1/8W
R242	1-214-578-11	S	RES, METAL	7.5K	1%	1/8W
R243	1-247-871-51	S	RES, CARBON	47K	5%	1/4W
R244	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R245	1-247-887-51	S	RES, CARBON	220K	5%	1/4W
R246	1-244-883-11	S	RES, CARBON	2.7K	5%	1/2W
R247	1-214-558-11	S	RES, METAL	1.1K	1%	1/8W
R248	1-218-284-51	S	RES, METAL	154	1%	1/6W
R249	1-214-557-11	S	RES, METAL	1K	1%	1/8W
R250	1-218-229-51	S	RES, METAL	162K	1%	1/6W
R251	1-247-784-51	S	RES, CARBON	11	5%	1/4W
R252	1-218-207-51	S	RES, METAL	8.06K	1%	1/6W
R253	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R301	1-214-578-11	S	RES, METAL	7.5K	1%	1/8W
R302	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R303	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R304	1-247-883-51	S	RES, CARBON	150K	5%	1/4W
R305	1-247-901-51	S	RES, CARBON	820K	5%	1/4W
R306	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W

Ref. No.	Parts No.	SP	Description			
R307	1-218-225-51	S	RES, METAL	73.2K	1%	1/6W
R308	1-218-224-51	S	RES, METAL	61.9K	1%	1/6W
R309	1-214-592-11	S	RES, METAL	30K	1%	1/8W
R310	1-247-783-51	S	RES, CARBON	10	5%	1/4W
R311	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R312	1-247-815-51	S	RES, CARBON	220	5%	1/4W
R313	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R314	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R315	1-244-883-11	S	RES, CARBON	2.7K	5%	1/2W
R316	1-218-196-51	S	RES, METAL	2.21K	1%	1/6W
R317	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R318	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R319	1-214-561-11	S	RES, METAL	1.5K	1%	1/8W
R320	1-214-557-11	S	RES, METAL	1K	1%	1/8W
R321	1-218-217-51	S	RES, METAL	30.1K	1%	1/6W
R322	1-218-227-51	S	RES, METAL	133K	1%	1/6W
R323	1-218-217-51	S	RES, METAL	30.1K	1%	1/6W
R324	1-244-883-11	S	RES, CARBON	2.7K	5%	1/2W
R325	1-247-841-51	S	RES, CARBON	2.7K	5%	1/4W
R326	1-247-783-51	S	RES, CARBON	10	5%	1/4W
R327 to R330	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R331	1-247-831-51	S	RES, CARBON	1K	5%	1/4W
R332	1-247-831-51	S	RES, CARBON	1K	5%	1/4W
R333	1-218-217-51	S	RES, METAL	30.1K	1%	1/6W
R334	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R335	1-218-215-51	S	RES, METAL	26.7K	1%	1/6W
R336	1-218-219-51	S	RES, METAL	36.5K	1%	1/6W
R337	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R338	1-247-901-51	S	RES, CARBON	820K	5%	1/4W
R339	1-247-883-51	S	RES, CARBON	150K	5%	1/4W
R340	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R341	1-214-558-11	S	RES, METAL	1.1K	1%	1/8W
R342	1-214-578-11	S	RES, METAL	7.5K	1%	1/8W
R343	1-247-871-51	S	RES, CARBON	47K	5%	1/4W
R344	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R345	1-247-887-51	S	RES, CARBON	220K	5%	1/4W
R346	1-244-883-11	S	RES, CARBON	2.7K	5%	1/2W
R347	1-214-558-11	S	RES, METAL	1.1K	1%	1/8W
R348	1-218-284-51	S	RES, METAL	154	1%	1/6W
R349	1-214-557-11	S	RES, METAL	1K	1%	1/8W
R350	1-218-229-51	S	RES, METAL	162K	1%	1/6W
R351	1-247-784-51	S	RES, CARBON	11	5%	1/4W
R352	1-218-207-51	S	RES, METAL	8.06K	1%	1/6W
R353	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R401	1-214-578-11	S	RES, METAL	7.5K	1%	1/8W
R402	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R403	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R404	1-247-883-51	S	RES, CARBON	150K	5%	1/4W
R405	1-247-901-51	S	RES, CARBON	820K	5%	1/4W
R406	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R407	1-218-225-51	S	RES, METAL	73.2K	1%	1/6W
R408	1-218-224-51	S	RES, METAL	61.9K	1%	1/6W
R409	1-214-592-11	S	RES, METAL	30K	1%	1/8W
R410	1-247-783-51	S	RES, CARBON	10	5%	1/4W
R411	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R412	1-247-815-51	S	RES, CARBON	220	5%	1/4W
R413	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R414	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R415	1-244-883-11	S	RES, CARBON	2.7K	5%	1/2W
R416	1-218-196-51	s	RES, METAL	2.21K	1%	1/6W

Ref. No.	Parts No.	SP	Description			
R417	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R418	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R419	1-214-561-11	S	RES, METAL	1.5K	1%	1/8W
R420	1-214-557-11	S	RES, METAL	1K	1%	1/8W
R421	1-218-217-51	S	RES, METAL	30.1K	1%	1/6W
R422	1-218-227-51	S	RES, METAL	133K	1%	1/6W
R423	1-218-217-51	S	RES, METAL	30.1K	1%	1/6W
R424	1-244-883-11	S	RES, CARBON	2.7K	5%	1/2W
R425	1-247-841-51	S	RES, CARBON	2.7K	5%	1/4W
R426	1-247-783-51	S	RES, CARBON	10	5%	1/4W
R427 to R430	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R431	1-247-831-51	S	RES, CARBON	1K	5%	1/4W
R432	1-247-831-51	S	RES, CARBON	1K	5%	1/4W
R433	1-218-217-51	S	RES, METAL	30.1K	1%	1/6W
R434	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R435	1-218-215-51	S	RES, METAL	26.7K	1%	1/6W
R436	1-218-219-51	S	RES, METAL	36.5K	1%	1/6W
R437	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R438	1-247-901-51	S	RES, CARBON	820K	5%	1/4W
R439	1-247-883-51	S	RES, CARBON	150K	5%	1/4W
R440	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R441	1-214-558-11	S	RES, METAL	1.1K	1%	1/8W
R442	1-214-578-11	S	RES, METAL	7.5K	1%	1/8W
R443	1-247-871-51	S	RES, CARBON	47K	5%	1/4W
R444	1-247-879-51	9	RES, CARBON	100K	5%	1/4W
R445	1-247-887-51	S	RES, CARBON	220K	5%	1/4W
R446	1-244-883-11	s	RES, CARBON	2.7K	5%	1/2W
R447	1-214-558-11	s	RES, METAL	1.1K	1%	1/8W
R448	1-218-284-51	S	RES, METAL	154	1%	1/6W
R449	1-214-557-11	S	RES, METAL	1K	1%	1/8W
R450	1-218-229-51	S	RES, METAL	162K	1%	1/6W
R451	1-247-784-51	S	RES, CARBON	11	5%	1/4W
R452	1-218-207-51	S	RES, METAL	8.06K	1%	1/6W
R453	1-214-581-11	S	RES, METAL	10K	1%	1/8W
RV106	1-230-846-11	S	RES, ADJ, METAL FILM 100K			
RV107	1-228-110-11	S	RES, ADJ, CERMET 2K			
RV108	1-228-462-11	S	RES, ADJ, CERMET 100K			
RV206	1-230-846-11	S	RES, ADJ, METAL FILM 100K			
RV207	1-228-110-11	S	RES, ADJ, CERMET 2K			
RV208	1-228-462-11	S	RES, ADJ, CERMET 100K			
RV306	1-230-846-11	S	RES, ADJ, METAL FILM 100K			
RV307	1-228-110-11	S	RES, ADJ, CERMET 2K			
RV308	1-228-462-11	S	RES, ADJ, CERMET 100K			
RV406	1-230-846-11	S	RES, ADJ, METAL FILM 100K			
RV407	1-228-110-11	S	RES, ADJ, CERMET 2K			
RV408	1-228-462-11	S	RES, ADJ, CERMET 100K			
S101	1-571-195-11	S	SWITCH, PUSH (1 KEY)			
S102	1-571-195-11	S	SWITCH, PUSH (1 KEY)			
S201	1-571-195-11	S	SWITCH, PUSH (1 KEY)			
S202	1-571-195-11	S	SWITCH, PUSH (1 KEY)			
S301	1-571-195-11	S	SWITCH, PUSH (1 KEY)			
S302	1-571-195-11	S	SWITCH, PUSH (1 KEY)			
S401	1-571-195-11	S	SWITCH, PUSH (1 KEY)			
S402	1-571-195-11	S	SWITCH, PUSH (1 KEY)			
W101	T-9412-014-1	S	FLEXIBLE FLAT CABLE JUMPERS 18P			
W201	T-9412-014-1	S	FLEXIBLE FLAT CABLE JUMPERS 18P			
W301	T-9412-014-1	S	FLEXIBLE FLAT CABLE JUMPERS 18P			
W401	T-9412-014-1	S	FLEXIBLE FLAT CABLE JUMPERS 18P			

DYS BOARD (MXBR-2903 ONLY)

Ref. No.	Parts No.	SP	Description	
–	A-4410-551-A	O	MOUNTED PCB, DYS	

(This assembly includes the following parts.)

–	4-922-102-01	S	NUT (KFS2-M3ET), PEM	
RV101	T-9413-523-1	S	POTENTIOMETER, MINI	5K
RV102	T-9413-526-1	S	POTENTIOMETER, MINI	100K
RV103	T-9413-526-1	S	POTENTIOMETER, MINI	100K
RV104	T-9413-523-1	S	POTENTIOMETER, MINI	5K
RV105	T-9413-523-1	S	POTENTIOMETER, MINI	5K
RV201	T-9413-523-1	S	POTENTIOMETER, MINI	5K
RV202	T-9413-526-1	S	POTENTIOMETER, MINI	100K
RV203	T-9413-526-1	S	POTENTIOMETER, MINI1	00K
RV204	T-9413-523-1	S	POTENTIOMETER, MINI	5K
RV205	T-9413-523-1	S	POTENTIOMETER, MINI	5K
RV301	T-9413-523-1	S	POTENTIOMETER, MINI	5K
RV302	T-9413-526-1	S	POTENTIOMETER, MINI	100K
RV303	T-9413-526-1	S	POTENTIOMETER, MINI	100K
RV304	T-9413-523-1	S	POTENTIOMETER, MINI	5K
RV305	T-9413-523-1	S	POTENTIOMETER, MINI	5K
RV401	T-9413-523-1	S	POTENTIOMETER, MINI	5K
RV402	T-9413-526-1	S	POTENTIOMETER, MINI	100K
RV403	T-9413-526-1	S	POTENTIOMETER, MINI	100K
RV404	T-9413-523-1	S	POTENTIOMETER, MINI	5K
RV405	T-9413-523-1	S	POTENTIOMETER, MINI	5K

EIC BOARD (MXBK-EI21 ONLY)

–	T-9481-920-2	O	PWA, EIC			

(This assembly includes the following parts.)

–	T-9456-444-1	O	LABEL, SERVICE, EIC			
–	T-9411-074-1	S	OPEN FRAME SOCKET 8P			
–	T-9411-075-1	S	OPEN FRAME SOCKET 14P			
–	T-9411-076-1	S	OPEN FRAME SOCKET 16P			
–	7-623-208-22	S	SW 3, TYPE 2			
–	7-682-548-09	S	SCREW +B 3X8			
–	7-684-023-04	S	N 3, TYPE 2			
C1 to C4	1-123-611-11	S	CAP, ELECT	1	20%	50V
C5	T-9411-286-1	S	CAP, CERAMIC	100P	10%	100V
C6	T-9411-286-1	S	CAP, CERAMIC	100P	10%	100V
C7	T-9411-323-1	S	CAP, CERAMIC	0.1	20%	100V
C8 to C11	T-9411-286-1	S	CAP, CERAMIC	100P	10%	100V
C12 to C56	T-9411-323-1	S	CAP, CERAMIC	0.1	20%	100V
CNJ1	1-566-385-11	O	PIN, CONNECTOR 2P			
	1-566-390-11	O	PIN, CONNECTOR 16P			
CNJ2	1-566-385-11	O	PIN, CONNECTOR 2P			
	1-566-390-11	O	PIN, CONNECTOR 16P			
CNJ3	1-560-192-11	O	PIN, CONNECTOR 50P			
CNJ4	1-560-617-11	O	PIN, CONNECTOR 26P			
CNJ5	1-560-334-11	O	PIN, CONNECTOR 10P			
CNJ6	1-566-385-11	O	PIN, CONNECTOR 2P			
	1-566-390-11	O	PIN, CONNECTOR 16P			
CNJ7	1-566-385-11	O	PIN, CONNECTOR 2P			
	1-566-390-11	O	PIN, CONNECTOR 16P			

Ref. No.	Parts No.	SP	Description
–	8-719-991-40	S	DIODE 1N914
D6	8-719-100-30	S	DIODE RD5.1EB2
D7	8-719-100-30	S	DIODE RD5.1EB2
D18 to D21	T-9410-657-1	S	DIODE J4
IC1	8-759-990-04	S	IC TL074CN
IC2	8-759-990-04	S	IC TL074CN
IC3 to IC5	8-759-032-78	S	IC MC74HC08AN
IC6	8-759-937-40	S	IC DG212CJ
IC7	8-759-990-04	S	IC TL074CN
IC8	T-9411-242-1	S	IC DG211CJ
IC9 to IC11	8-759-937-40	S	IC DG212CJ
IC12	8-759-990-04	S	IC TL074CN
IC13	T-9411-242-1	S	IC DG211CJ
IC14	8-759-937-40	S	IC DG212CJ
IC15	8-759-937-40	S	IC DG212CJ
IC16	8-759-990-72	S	IC TL072CP
IC17	T-9413-476-1	S	IC RC4200ANB
IC18	8-759-990-04	S	IC TL074CN
IC19	8-759-990-04	S	IC TL074CN
IC20	T-9413-476-1	S	IC ANALOG MULTIPLIER RC4200ANB
IC21	8-759-032-78	S	IC MC74HC08AN
IC22	8-759-032-74	S	IC MC74HC00AN
IC23	8-759-916-20	S	IC SN74HC14AN
IC24	8-759-032-74	S	IC MC74HC00AN
IC25	8-759-032-74	S	IC MC74HC00AN
IC26	8-759-032-78	S	IC MC74HC08AN
IC28	8-759-916-20	S	IC SN74HC14AN
IC29	8-759-916-20	S	IC SN74HC14AN
JW1	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P
	1-566-385-11	S	PIN, CONNECTOR 2P
JW2	1-566-385-11	S	PIN, CONNECTOR 2P
JW3	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P
	1-566-385-11	S	PIN, CONNECTOR 2P
JW4	1-566-385-11	S	PIN, CONNECTOR 2P
JW5	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P
	1-566-385-11	S	PIN, CONNECTOR 2P
JW6	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P
	1-566-385-11	S	PIN, CONNECTOR 2P
JW7	1-566-385-11	S	PIN, CONNECTOR 2P
JW8	1-566-385-11	S	PIN, CONNECTOR 2P
JW9	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P
	1-566-385-11	S	PIN, CONNECTOR 2P
JW10	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P
	1-566-385-11	S	PIN, CONNECTOR 2P
JW11	1-566-385-11	S	PIN, CONNECTOR 2P
JW12	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P
	1-566-385-11	S	PIN, CONNECTOR 2P
JW13	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P
	1-566-385-11	S	PIN, CONNECTOR 2P
JW14	1-566-385-11	S	PIN, CONNECTOR 2P
JW15	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P
	1-566-385-11	S	PIN, CONNECTOR 2P
JW16	1-566-385-11	S	PIN, CONNECTOR 2P
–	T-9412-795-1	S	TRANSISTOR ARRAY, NPN CA3083
Q1	8-759-178-15	S	IC UPC78L15
Q2	8-759-179-15	S	IC UPC7915
Q3	8-729-139-04	S	TRANSISTOR SN3904
Q4	8-729-113-08	S	TRANSISTOR SN3906

Ref. No.	Parts No.	SP	Description			
–	T-9411-146-1	S	RES NET SIP 10K			
–	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
–	1-247-871-51	S	RES, CARBON	47K	5%	1/4W
R1	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R2 to R17	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R18 to R26	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R27	1-247-837-51	S	RES, CARBON	1.8K	5%	1/4W
R28 to R33	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R34	T-9411-695-1	S	RES, METAL	4.99K	1%	1/8W
R35	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R36	1-214-585-11	S	RES, METAL	15K	1%	1/8W
R37	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R38	T-9411-564-1	S	RES, METAL	31.6K	1%	1/8W
R39	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R40	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R41	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R42	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R43	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R44	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R45	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R46	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R47	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R48	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R49	T-9411-564-1	S	RES, METAL	31.6K	1%	1/8W
R50 to R55	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R56	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R57	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R58	1-215-822-11	S	RES, METAL	47K	1%	1/8W
R59	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R60	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R61	1-215-822-11	S	RES, METAL	47K	1%	1/8W
R62	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R63	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R64	1-215-822-11	S	RES, METAL	47K	1%	1/8W
R65	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R66	1-215-822-11	S	RES, METAL	47K	1%	1/8W
R67	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R68	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R69	1-215-822-11	S	RES, METAL	47K	1%	1/8W
R70	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R71	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R72	1-215-822-11	S	RES, METAL	47K	1%	1/8W
R73	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R74	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R76 to R78	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R79	1-215-822-11	S	RES, METAL	47K	1%	1/8W
R80	1-247-837-51	S	RES, CARBON	1.8K	5%	1/4W
R81	1-214-585-11	S	RES, METAL	15K	1%	1/8W
R82 to R85	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R88 to R95	1-214-557-11	S	RES, METAL	1K	1%	1/8W
R100	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R101	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R102	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R103	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R104	T-9411-695-1	S	RES, METAL	4.99K	1%	1/8W
RV1	T-9411-182-1	S	TRIM POT, 18 TURN, RJ29 SERIES			
RV2	1-228-908-11	S	RES, ADJ, CERMET 50K			
RV3	T-9411-182-1	S	TRIM POT, 18 TURN, RJ29 SERIES			
RV4	1-228-908-11	S	RES, ADJ, CERMET 50K			

ELN BOARD (MXBK-2901,2904,2909 ONLY)
MXBK-LI24

-	———	U	COMPLETE PCB, ELN			

(This assembly is available as product, and not as service part.)

–	T-9456-440-1	O	LABEL, SERVICE, ELN			
–	1-526-652-21	S	SOCKET, IC (DP) 8P			
C1	1-124-631-11	9	CAP, ELECT	47	20%	16V
C2	1-124-631-11	S	CAP, ELECT	47	20%	16V
C3	1-162-743-21	S	CAP, CERAMIC	33P	5%	50V
C4	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C5	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C6	T-9411-292-1	S	CAP, CERAMIC	330P	10%	100V
C7	1-124-631-11	S	CAP, ELECT	47	20%	16V
C8	1-124-014-11	S	CAP, ELECT	220	20%	16V
C9	1-124-631-11	S	CAP, ELECT	47	20%	16V
C10 to C13	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C14	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C15	T-9413-584-1	S	CAP, ELECT	100		16V
C16	T-9413-584-1	S	CAP, ELECT	100		16V
CNP1	1-564-464-21	5	CONNECTOR (LIGT ANGLE) 15P			
IC1	8-759-900-72	S	IC NE5532P			
R1	1-214-568-11	S	RES, METAL	3K	1%	1/8W
R2	T-9411-814-1	S	RES, METAL	27.4K	1%	1/8W
R3	T-9411-691-1	S	RES, METAL	4.53K	1%	1/8W
R4	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R5	1-214-557-11	S	RES, METAL	1K	1%	1/8W
R6	1-214-580-11	S	RES, METAL	9.1K	1%	1/8W
R7	1-214-561-11	S	RES, METAL	1.5K	1%	1/8W
R8	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R9	1-214-533-11	S	RES, METAL	100	1%	1/8W
R10	1-247-783-51	S	RES, CARBON	10	5%	1/4W
R11	T-9411-669-1	S	RES, METAL	2.61K	1%	1/8W
R12	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R13	1-247-799-51	S	RES, CARBON	47	5%	1/4W
R14	1-247-799-51	S	RES, CARBON	47	5%	1/4W

EMN BOARD (MXBK-2901 ONLY)
MXBK-MI24

Ref. No.	Parts No.	SP	Description			
-	————	U	COMPLETE PCB, EMN			

(This assembly is available as product, and not as service part.)

Ref. No.	Parts No.	SP	Description			
-	T-9456-438-1	O	LABEL, SERVICE, EMN			
-	1-526-652-21	S	SOCKET, IC (DP) 8P			
-	1-526-653-21	S	SOCKET, IC (DP) 14P			
C1	1-162-745-21	S	CAP, CERAMIC	47P	5%	50V
C2	1-162-806-21	S	CAP, CERAMIC	0.1	10	50V
C3	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C4	1-162-743-21	S	CAP, CERAMIC	33P	5%	50V
C5	1-162-743-21	S	CAP, CERAMIC	33P	5%	50V
C6	1-124-631-11	S	CAP, ELECT	47	20%	16V
C7	T-9411-268-1	S	CAP, CERAMIC	220P	10%	100V
C8	1-123-355-11	S	CAP, ELECT	4.7	20%	50V
C9	1-123-355-11	S	CAP, ELECT	4.7	20%	50V
C10	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C11	1-162-745-21	S	CAP, CERAMIC	47P	1%	50V
C12	1-162-753-21	S	CAP, CERAMIC	100P	1%	50V
C13	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C14	1-124-631-11	S	CAP, ELECT	47	20%	16V
C15	T-9411-297-1	S	CAP, CERAMIC	820P	20%	100V
C16	T-9413-584-1	S	CAP, ELECT	100		6V
C17	T-9413-584-1	S	CAP, ELECT	100		6V
CNJ1	1-564-464-21	S	CONNECTOR (LIGHT ANGLE) 15P			
D1 to D4	8-719-991-40	S	DIODE 1N914			
IC1	T-9413-580-1	S	IC SSM2015			
IC2	8-759-905-34	S	IC NE5534AN			
R1	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R2	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R3	1-247-865-51	9	RES, CARBON	27K	5%	1/4W
R4	1-247-844-51	S	RES, CARBON	3.6K	5%	1/4W
R5	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R6	1-247-792-11	S	RES, CARBON	24	5%	1/4W
R7	T-9411-536-1	S	RES, METAL	118	1%	1/8W
R8	1-247-844-51	S	RES, CARBON	3.6K	5%	1/4W
R9	1-247-833-51	S	RES, CARBON	1.2K	5%	1/4W
R10	T-9413-639-1	S	RES, METAL	536	1%	1/8W
R11	T-9413-639-1	S	RES, METAL	536	1%	1/8W
R12	1-247-805-51	S	RES, CARBON	100	5%	1/4W
R13	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R14	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R15	1-247-811-11	S	RES, CARBON	150	5%	1/4W
R16	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R17	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R18	1-247-799-51	S	RES, CARBON	47	5%	1/4W
R19	1-247-799-51	S	RES, CARBON	47	5%	1/4W
R20	1-247-830-51	S	RES, CARBON	910	5%	1/4W
R21	1-247-839-51	S	RES, CARBON	2.2K	5%	1/4W
RV1	1-237-263-11	S	RES, ADJ, METAL FILM 50K			

GPS BOARD (MXBK-2902 ONLY)

Ref. No.	Parts No.	SP	Description			
-	A-4410-549-A	O	MOUNTED PCB, GPS			

(This assembly includes the following parts.)

Ref. No.	Parts No.	SP	Description			
-	1-526-652-21	S	SOCKET, IC (DP) 8P			
-	4-922-102-01	S	NUT (KFS2-M3ET), PEM			
C36	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C37	1-130-784-11	S	CAP, FILM	0.39	5%	100V
C38	1-130-779-11	S	CAP, FILM	0.15	5%	100V
C39 to C41	1-124-631-11	S	CAP, ELECT	47	20%	16V
C53	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C54	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C63	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C64	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C65 to C69	1-124-631-11	S	CAP, ELECT	47	20%	16V
C70	1-162-806-11	S	CAP, CERAMIC	0.1	10%	50V
C71	1-162-806-11	S	CAP, CERAMIC	0.1	10%	50V
IC10	8-759-990-72	S	IC TL072CP			
IC12	8-759-990-72	S	IC TL072CP			
R58	1-247-837-51	S	RES, CARBON	1.8K	5%	1/4W
R59	1-247-837-51	S	RES, CARBON	1.8K	5%	1/4W
R60	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R61 to R65	1-247-859-51	S	RES, CARBON	100K	5%	1/4W
R66	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R67	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R68	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R69	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R71	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R72	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R73	1-247-809-51	S	RES, CARBON	120	5%	1/4W
R74	1-247-809-51	S	RES, CARBON	120	5%	1/4W
R75	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R108	1-215-431-51	S	RES, METAL	2.7K	1%	1/4W
R109	1-215-431-51	S	RES, METAL	2.7K	1%	1/4W
R110 to R112	1-247-859-51	S	RES, CARBON	100K	5%	1/4W
RV9	T-9413-527-1	S	POTENTIOMETER, MINI 100K			
RV10	T-9413-532-3	S	POTENTIOMETER, MINI 5K/5K			
RV11	T-9412-122-1	S	POTENTIOMETER, MINI 5K/5K			
RV12	T-9413-523-1	S	POTENTIOMETER, MINI 5K			
RV13	T-9413-525-1	S	POTENTIOMETER, MINI 5K			
S1	1-571-196-11	S	SWITCH, PUSH (1 KEY)			
S5 to S7	1-571-200-11	S	SWITCH, PUSH (3 KEY)			
S9	1-571-194-11	S	SWITCH, PUSH (1 KEY)			
S10	1-571-197-11	S	SWITCH, PUSH (2 KEY)			
S15	1-571-197-11	S	SWITCH, PUSH (2 KEY)			

GRM BOARD (MXBK-2902 ONLY)

Ref. No.	Parts No.	SP	Description			
–	T-9486-041-A	O	MOUNTED PCB, GRM			

(This assembly includes the following parts.)

Ref. No.	Parts No.	SP	Description			
–	T-9456-422-2	O	LABEL, SERVICE, GRM			
–	T-9411-078-1	S	OPEN FRAME SOCKET 20P			
–	1-526-652-21	S	SOCKET, IC (DP) 8P			
–	1-526-653-21	S	SOCKET, IC (DP) 14P			
–	4-922-102-01	S	NUT (KFS2-M3ET), PEM			
–	4-922-103-02	S	SPRING			
C1 to C4	1-124-631-11	S	CAP, ELECT	47	20%	16V
C5	1-108-793-11	S	CAP, MYLAR	0.0012	5%	50V
C6	1-108-634-61	S	CAP, MYLAR	0.047	5%	100V
C7	1-124-631-11	S	CAP, ELECT	47	20%	16V
C8	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C9 to C11	1-124-631-11	S	CAP, ELECT	47	20%	16V
C12	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C13	1-124-631-11	S	CAP, ELECT	47	20%	16V
C14	1-124-631-11	S	CAP, ELECT	47	20%	16V
C15	1-124-014-11	S	CAP, ELECT	220	20%	16V
C16	1-124-631-11	S	CAP, ELECT	47	20%	16V
C17	1-124-631-11	S	CAP, ELECT	47	20%	16V
C18	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C19	1-126-252-11	S	CAP, ELECT	1000	20%	6.3V
C20	1-124-631-11	S	CAP, ELECT	47	20%	16V
C21	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C22	1-124-631-11	S	CAP, ELECT	47	20%	16V
C23	1-124-631-11	S	CAP, ELECT	47	20%	16V
C24	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C25	1-124-631-11	S	CAP, ELECT	47	20%	16V
C26	1-124-631-11	S	CAP, ELECT	47	20%	16V
C27	1-162-794-21	S	CAP, CERAMIC	0.01	10%	50V
C28	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C29	1-124-631-11	S	CAP, ELECT	47	20%	16V
C30	1-124-631-11	S	CAP, ELECT	47	20%	16V
C31	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C32 to C35	1-123-621-41	S	CAP, ELECT	10	20%	25V
C42	1-124-014-11	S	CAP, ELECT	220	20%	16V
C43	1-124-014-11	S	CAP, ELECT	220	20%	16V
C44 to C52	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C55 to C57	1-124-631-11	S	CAP, ELECT	47	20%	16V
C58	1-162-774-21	S	CAP, CERAMIC	5600P	5%	50V
C59	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C60	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C61	1-162-782-21	S	CAP, CERAMIC	1000P	1%	50V
C62	1-162-782-21	S	CAP, CERAMIC	1000P	1%	50V
C72	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C73	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C74	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C75	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C76 to C80	1-124-631-11	S	CAP, ELECT	47	20%	16V
C81	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C82	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V

Ref. No.	Parts No.	SP	Description			
C83	1-124-631-11	S	CAP, ELECT	47	20%	16V
C84	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C85	1-124-631-11	S	CAP, ELECT	47	20%	16V
C86 to C88	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C89	1-123-621-41	S	CAP, ELECT	10	20%	25V
C90	1-124-230-51	S	CAP, ELECT	47	20%	10V
CNJ1	1-560-310-11	O	POST HEADER (IL CONNECTOR) 4P			
CNJ2	1-560-313-11	O	POST HEADER (IL CONNECTOR) 8P			
CNJ3	1-562-454-21	S	CONNECTOR 15P			
D2 to D5)	8-719-911-19	S	DIODE 1SS119			
D7	8-719-911-19	S	DIODE 1SS119			
D8 to D11	8-719-940-03	S	DIODE 1N4004			
D12 to D15	8-719-911-19	S	DIODE 1SS119			
D18	T-9410-333-1	S	DIODE			
D19	T-9410-333-1	S	DIODE			
DS3	8-719-812-43	S	DIODE TLG124A			
DS4	8-719-938-68	S	DIODE GL3HY8			
DS5	8-719-812-43	S	DIODE TLG124A			
DS6	8-719-812-41	S	DIODE TLR124			
IC1	8-759-990-72	S	IC TL072CP			
IC2	8-759-990-72	S	IC TL072CP			
IC3	T-9414-284-2	S	IC ACN-4			
IC4	T-9414-285-1	S	HIC L02			
IC5	8-759-990-72	S	IC TL072CP			
IC6	8-759-032-75	S	IC MC74HC02AN			
IC7	8-759-990-72	S	IC TL072CP			
IC8	8-759-990-72	S	IC TL072CP			
IC9	8-759-179-15	S	IC UPC7915H			
IC11	8-759-171-15	S	IC UPC7815H			
IC13	8-759-990-72	S	IC TL072CP			
IC14	8-759-990-72	S	IC TL072CP			
IC15	T-9411-242-1	S	IC DG211CJ			
JW3	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-386-11	S	PIN, CONNECTOR 4P			
JW5	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-387-11	S	PIN, CONNECTOR 6P			
JW7	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW8	1-566-385-11	S	PIN, CONNECTOR 2P			
JW9	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-388-11	S	PIN, CONNECTOR 8P			
JW13	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-388-11	S	PIN, CONNECTOR 8P			
JW17	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-386-11	S	PIN, CONNECTOR 4P			
JW18	1-566-391-11	S	PIN, CONNECTOR 20P			
JW21	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-386-11	S	PIN, CONNECTOR 4P			
JW23	1-566-386-11	S	PIN, CONNECTOR 4P			
JW24	1-566-385-11	S	PIN, CONNECTOR 2P			
JW25	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-386-11	S	PIN, CONNECTOR 4P			

Ref. No.	Parts No.	SP	Description			
JW28	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-387-11	S	PIN, CONNECTOR 6P			
JW29	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
JW31	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW34	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
JW37	1-566-387-11	S	PIN, CONNECTOR 6P			
JW38	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
JW40	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW41	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW42	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW46	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-387-11	S	PIN, CONNECTOR 6P			
JW52	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
JW56	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
JW57	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
JW58	1-566-388-11	S	PIN, CONNECTOR 8P			
JW59	1-566-385-11	S	PIN, CONNECTOR 2P			
JW61	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
JW64	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-386-11	S	PIN, CONNECTOR 4P			
JW1001	1-566-385-11	S	PIN, CONNECTOR 2P			
JW1002	1-566-385-11	S	PIN, CONNECTOR 2P			
K1	1-515-670-11	S	RELAY			
L1	T-9412-802-1	S	CHORE COIL 220UH			
L2	T-9412-802-1	S	CHOKE COIL 220H			
Q1	8-729-113-08	S	TRANSISTOR 2N3906			
Q2	8-729-139-04	S	TRANSISTOR 2N3904			
Q3	8-729-139-04	S	TRANSISTOR 2N3904			
Q4	8-729-113-08	S	TRANSISTOR 2N3906			
Q5	8-729-139-04	S	TRANSISTOR 2N3904			
R1	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R2	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R3	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R4	1-214-592-11	S	RES, METAL	30K	1%	1/8W
R5	1-214-585-11	S	RES, METAL	15K	1%	1/8W
R6	1-247-850-51	S	RES, CARBON	6.2K	5%	1/4W
R7	1-218-208-51	S	RES, METAL	10.5K	1%	1/6W
R8	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R9	1-247-850-51	S	RES, CARBON	6.2K	5%	1/4W
R10	1-218-208-51	S	RES, METAL	10.5K	1%	1/6W
R11	1-210-828-11	S	RES, CARBON	4.7M	5%	1/4W
R12	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R13	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R14	1-218-204-51	S	RES, METAL	6.04K	1%	1/6W
R15	1-247-838-51	S	RES, CARBON	2K	5%	1/4W
R16	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R17	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R18	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R19 to R21	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R22	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R23	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R24	1-247-846-51	S	RES, CARBON	4.3K	5%	1/4W
R25	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R26	1-247-846-51	S	RES, CARBON	4.3K	5%	1/4W
R27	1-247-842-51	S	RES, CARBON	3K	5%	1/4W
R28	1-247-846-51	S	RES, CARBON	4.3K	5%	1/4W
R29	1-247-842-51	S	RES, CARBON	3K	5%	1/4W
R30	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R31	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R32	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R33	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R34	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R35	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R36	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R37	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R38	1-247-831-51	S	RES, CARBON	1K	5%	1/4W
R39	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R40	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R41	1-246-434-15	S	RES, CARBON	24	5%	1/4W
R42	1-247-687-51	S	RES, CARBON	33K	5%	1/4W
R43	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R45	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R46	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R47	1-247-813-51	S	RES, CARBON	180	5%	1/4W
R48	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R49	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R50	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R51	1-247-903-51	S	RES, CARBON	1M	5%	1/4W
R52	1-247-866-51	S	RES, CARBON	30K	5%	1/4W
R53	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R55	1-247-802-51	S	RES, CARBON	62	5%	1/4W
R56	1-247-867-51	S	RES, CARBON	33K	5%	1/4W
R57	1-247-856-51	S	RES, CARBON	11K	5%	1/4W
R70	1-247-858-51	S	RES, CARBON	13K	5%	1/4W
R76 to R81	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R82	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R83	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R84 to R93	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R94	1-247-841-51	S	RES, CARBON	2.7K	5%	1/4W
R95	1-249-841-51	S	RES, CARBON	2.7K	5%	1/4W
R96	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R97	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R98	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R99 to R106	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R107	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R113	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R114	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R115	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R116	1-247-843-51	S	RES, CARBON	3.3K	5%	1/4W
R117	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R118	1-247-843-51	S	RES, CARBON	3.3K	5%	1/4W
R119	1-247-826-51	S	RES, CARBON	620	5%	1/4W
R120	1-247-826-51	S	RES, CARBON	620	5%	1/4W
R121	1-247-878-51	S	RES, CARBON	91K	5%	1/4W
R122	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R123	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R125	1-247-878-51	S	RES, CARBON	91K	5%	1/4W
R126	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R127	1-247-879-51	S	RES, CARBON	100K	5%	1/4W

Ref. No.	Parts No.	SP	Description			
R128	1-247-863-51	S	RES, CARBON	22K	5%	1/4W
R130	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R131	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R133	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
to R135						
R136	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R138	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
RN1	T-9411-146-1	S	RES NETWORK, SIP 10K			
RV1	T-9413-527-1	S	POTENTIOMETER, MINI 100K			
RV2	T-9413-527-1	S	POTENTIOMETER, MINI 100K			
RV3	T-9413-524-1	S	POTENTIOMETER, MINI 5K			
RV4	T-9412-122-1	S	POTENTIOMETER, MINI 5K/5K			
RV5	T-9412-122-1	S	POTENTIOMETER, MINI 5K/5K			
RV6	1-226-698-11	S	RES, ADJ, CERMET 10K			
RV7	T-9413-523-1	S	POTENTIOMETER, MINI 5K			
RV8	T-9413-523-1	S	POTENTIOMETER, MINI 5K			
RV15	1-224-936-11	S	RES, ADJ, METAL FILM 500			
S2	1-571-201-11	S	SWITCH, PUSH (3 KEY)			
S4	1-571-196-11	S	SWITCH, PUSH (1 KEY)			
S8	1-571-195-11	S	SWITCH, PUSH (1 KEY)			
S11	1-571-201-11	S	SWITCH, PUSH (3 KEY)			
S12	1-571-201-11	S	SWITCH, PUSH (3KEY)			
S13	1-571-195-11	S	SWITCH, PUSH (1 KEY)			
S14	1-571-194-11	S	SWITCH, PUSH (1KEY)			
S15	1-571-193-11	S	SWITCH, PUSH (1KEY)			
S16	T-9413-495-1	S	SWITCH, ROTARY			
T1	T-9413-494-1	S	TRANSFORMER			
W1	T-9416-151-1	S	FLEXIBLE FLAT CABLE JUMPERS 18P			
W2	T-9416-151-1	S	FLEXIBLE FLAT CABLE JUMPERS 18P			
W3	T-9416-150-1	S	FLEXIBLE FLAT CABLE JUMPERS 10P			

IOS BOARD (MXBK-2901,2901E ONLY)

-	A-4410-546-B	O	MOUNTED PCB, IOS

(This assembly includes the following parts.)

Ref. No.	Parts No.	SP	Description			
-	1-526-652-21	S	SOCKET, IC (DP) 8P			
-	4-922-102-01	S	NUT (KFS2-M3ET), PEM			
C16	1-124-631-11	S	CAP, ELECT	47	20%	16V
C17	1-130-779-11	S	CAP, FILM	0.15	5%	100V
C18	1-130-784-11	S	CAP, FILM	0.39	5%	100V
C19	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C20	1-124-631-11	S	CAP, ELECT	47	20%	16V
C46	1-123-371-11	S	CAP, ELECT	22	20%	63V
C46	1-123-371-11	S	CAP, ELECT	22	20%	63V
C47	1-124-631-11	S	CAP, ELECT	47	20%	16V
C51	1-162-806-11	S	CAP, CERAMIC	0.1	10%	50V
C52	1-162-806-11	S	CAP, CERAMIC	0.1	10%	50V
C64	1-124-631-11	S	CAP, ELECT	47	20%	16V
to C67						
C68	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C69	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C70	1-124-631-11	S	CAP, ELECT	47	20%	16V
to C73						

Ref. No.	Parts No.	SP	Description			
C75	1-124-631-11	S	CAP, ELECT	47	20%	16V
C76	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C77	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
DS2	8-719-812-41	S	DIODE TLR124			
DS4	8-719-812-42	S	DIODE TLY124			
DS5	8-719-812-43	S	DIODE TLG124A			
DS10	8-719-812-41	S	DIODE TLR124			
IC3	8-759-990-72	S	IC TL072CP			
IC10	8-759-990-72	S	IC TL072CP			
R1	1-247-879-51	S	RES, CARBON	100K5% 1/4W		
to R3						
R4	T-9413-659-1	S	JUMPER WIRES			
R5	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R16	1-247-837-51	S	RES, CARBON	1.8K	5%	1/4W
R17	1-247-837-51	S	RES, CARBON	1.8K	5%	1/4W
R19	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R20	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R21	1-247-809-51	S	RES, CARBON	120	5%	1/4W
R22	1-247-809-51	S	RES, CARBON	120	5%	1/4W
R23	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R24	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R25	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R31	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R32	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R33	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R34	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R73	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R74	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R75	1-215-431-51	S	RES, METAL	2.7K	1%	1/4W
R76	1-215-431-51	S	RES, METAL	2.7K	1%	1/4W
R77	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R78	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R113	1-247-851-51	S	RES, CARBON	6.8K	5%	1/4W
R114	1-247-851-51	S	RES, CARBON	6.8K	5%	1/4W
R115	1-247-823-51	S	RES, CARBON	470	5%	1/4W
R116	1-247-851-51	S	RES, CARBON	6.8K	5%	1/4W
R117	1-247-851-51	S	RES, CARBON	6.8K	5%	1/4W
R118	1-247-823-51	S	RES, CARBON	470	5%	1/4W
R137	1-247-855-51	S	RES, CARBON	22K	5%	1/4W
R138	1-247-855-51	S	RES, CARBON	22K	5%	1/4W
RV3	T-9413-532-3	S	POTENTIOMETER, MINI 5K/5K			
RV5	T-9412-122-1	S	POTENTIOMETER, MINI 5K/5K			
RV8	T-9413-523-1	S	POTENTIOMETER, MINI 5K			
RV15	T-9413-527-1	S	POTENTIOMETER, MINI 100K			
S1	1-571-204-11	S	SWITCH, PUSH (4 KEY)			
S2	1-571-204-11	S	SWITCH, PUSH (4 KEY)			
S5	1-571-204-11	S	SWITCH, PUSH (4 KEY)			
S6	1-571-202-11	S	SWITCH, PUSH (4 KEY)			
to S9						
S10	1-571-193-11	S	SWITCH, PUSH (1 KEY)			
S12	1-571-197-11	S	SWITCH, PUSH (2 KEY)			
S13	1-571-197-11	S	SWITCH, PUSH (2 KEY)			
S16	1-571-198-11	S	SWITCH, PUSH (2 KEY)			
S18	1-571-198-11	S	SWITCH, PUSH (2 KEY)			
S21	1-571-204-11	S	SWITCH, PUSH (4 KEY)			

LDB BOARD (MXP-2916,2916P,2926,2926P,2936,2936P ONLY)

Ref. No.	Parts No.	SP	Description			
–	T-9483-189-1	O	LDB COMPLE			

(This assembly includes the following parts.)

–	T-9481-981-2	O	LIC CBL ASSY			
C1 to C6	T-9411-286-1	S	CAP, CERAMIC	100P	10%	100V
DS1	T-9413-480-1	S	LED, LIGHT BAR, 12MMx20MM			
DS2	T-9413-480-1	S	LED, LIGHT BAR, 12MMx20MM			
DS3	T-9413-478-1	S	LED, LIGHT BAR, 12MMx20MM			
DS4	T-9413-479-1	S	LED, LIGHT BAR, 12MMx20MM			
DS5	T-9413-478-1	S	LED, LIGHT BAR, 12MMx20MM			
DS6	T-9413-478-1	S	LED, LIGHT BAR, 12MMx20MM			
Q1 to Q3	8-729-139-04	S	TRANSISTOR 2N3904			
Q4	8-729-113-08	S	TRANSISTOR 2N3906			
Q5	8-729-139-04	S	TRANSISTOR 2N3904			
Q6	8-729-113-08	S	TRANSISTOR 2N3906			
R1	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R2 to R4	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R5	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R6	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R7	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R8	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R9	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R10	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R11	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R12	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R13	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R14	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W

MBC BOARD (MXP-2916,2916P,2926,2926P,2936,2936P ONLY)

–	T-9486-067-A	O	PWA, MBC

(This assembly includes the following parts.)

CNJ1	1-560-190-11	O	CONNECTOR 20P
CNJ2	1-560-190-11	O	CONNECTOR 20P
CNJ3	1-560-192-11	O	CONNECTOR 50P
CNJ4 to CNJ13	T-9413-254-1	O	CONNECTOR, EDGE 72P
CNJ16	1-560-334-11	O	CONNECTOR 10P
CNP1	T-9413-809-1	O	CONNECTOR, R.A., 130 PIN, MALE
E1	T-9413-810-1	O	PCB TERMINAL BLOCK, SCREW CLAMP
JW1 to JW20			
	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P
	1-566-385-11	S	PIN, CONNECTOR 2P

MIB BOARD (MXP-2916,2926,2936 ONLY)

Ref. No.	Parts No.	SP	Description			
–	T-9481-923-2	O	MOUNTED PCB, MIB			

(This assembly includes the following parts.)

CNJ1	1-564-490-11	S	PIN, CONNECTOR 10P			
JW1	1-566-385-11	S	PIN, CONNECTOR 5P			
JW2	1-566-385-11	S	PIN, CONNECTOR 2P			
	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
R1	1-247-844-51	S	RES, CARBON	3.6K	5%	1/4W

MML BOARD (MXBK-2906 ONLY)

–	A-4410-557-A	O	MOUNTED PCB, MML			

(This assembly includes the following parts.)

–	7-621-759-75	S	SCREW,+PSW2.6x10			
–	7-622-207-05	S	N 2.6, TYPE 2			
C109	1-162-799-21	S	CAP, CERAMIC	0.027	10%	50V
C110	1-130-782-11	S	CAP, FILM	0.27	5%	100V
C111	1-162-799-21	S	CAP, CERAMIC	0.027	10%	50V
C112	1-130-782-11	S	CAP, FILM	0.27	5%	100V
C113	1-162-799-21	S	CAP, CERAMIC	0.027	10%	50V
C114	1-130-782-11	S	CAP, FILM	0.27	5%	100V
C115	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C116	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C117	1-162-799-21	S	CAP, CERAMIC	0.027	10%	50V
C124	1-123-621-41	S	CAP, ELECT	10	20%	25V
CNJ1 to CNJ3	1-560-310-11	O	POST HEADER (IL CONNECTOR) 4P			
–	1-565-413-11	S	RECEPTACLE, CONNECTOR 2P			
–	1-526-653-21	S	SOCKET, IC (DP) 14P			
D15 to D17	8-719-911-19	S	DIODE 1SS119			
IC19	8-759-032-75	S	IC MC74HC02AN			
IC20	8-759-032-75	S	IC MC74HC02AN			
JW1	1-566-385-11	S	PIN, CONNECTOR 2P			
JW2	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW3	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW4	1-566-385-11	S	PIN, CONNECTOR 2P			
JW5	1-566-385-11	S	PIN, CONNECTOR 2P			
JW6	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW7	1-566-385-11	S	PIN, CONNECTOR 2P			
JW8	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW9	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW10	1-566-385-11	S	PIN, CONNECTOR 2P			

Ref. No.	Parts No.	SP	Description			
Q15 to Q17	8-729-139-04	S	TRANSISTOR 2N3904			
Q18 to Q20	8-729-113-08	S	TRANSISTOR 2N3906			
Q21	8-729-304-92	S	TRANSISTOR 2SB649A-C			
R138	1-247-831-51	S	RES, CARBON	1K	5%	1/4W
R139	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R140	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R141	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R142	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R143	1-247-831-51	S	RES, CARBON	1K	5%	1/4W
R144	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R145	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R146	1-247-831-51	S	RES, CARBON	1K	5%	1/4W
R147	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R148	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R149 to R151	1-214-519-11	S	RES, METAL	27	1%	1/8W
R152	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R153	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R154	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R155 to R157	1-247-867-51	S	RES, CARBON	33K	5%	1/4W
R185	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R186	1-247-903-51	S	RES, CARBON	1M	5%	1/4W
R191 to R193	1-247-826-51	S	RES, CARBON	620	5%	1/4W

MOM BOARD (MXBK-2901,2901E ONLY)

–	T-9483-001-1	O	MOUNTED PCB, MOM

(This assembly includes the following parts.)

Ref. No.	Parts No.	SP	Description			
–	T-9456-445-2	O	LABEL, SERVICE, MOM			
–	1-526-652-21	S	SOCKET, IC (DP) 8P			
–	1-526-653-21	S	SOCKET, IC (DP) 14P			
–	4-922-102-01	S	NUT (KF52-M3ET), PEM			
–	4-922-103-01	S	SPRING			
–	T-9416-147-1	O	HEAT SINK, CLIP TYPE			
C1 to C4	1-123-621-11	S	CAP, ELECT	10	20%	25V
C5	1-124-014-11	S	CAP, ELECT	220	20%	16V
C6	1-124-014-11	S	CAP, ELECT	220	20%	16V
C7	1-130-781-11	S	CAP, FILM	0.22	5%	100V
C8	1-130-781-11	S	CAP, FILM	0.22	5%	100V
C9	1-124-631-11	S	CAP, ELECT	47	20%	16V
C10	1-108-793-11	S	CAP, MYLAR	0.0012	5%	50V
C11	1-108-634-61	S	CAP, MYLAR	0.047	10%	100V
C12	1-124-631-11	S	CAP, ELECT	47	20%	16V
C14	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C15	1-124-631-11	S	CAP, ELECT	47	20%	16V
C21	1-124-646-11	S	CAP, ELECT	22	20%	16V
C22	1-124-631-11	S	CAP, ELECT	47	20%	16V
C24	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C25 to C27	1-124-631-11	S	CAP, ELECT	47	20%	16V
C28	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C29	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C30 to C33	1-124-631-11	S	CAP, ELECT	47	20%	16V
C34	1-124-014-11	S	CAP, ELECT	220	20%	16V
C35	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C36	1-162-794-21	S	CAP, CERAMIC	0.01	10%	50V
C38	1-124-014-11	S	CAP, ELECT	220	20%	16V
C39	1-124-631-11	S	CAP, ELECT	47	20%	16V
C40	1-124-631-11	S	CAP, ELECT	47	20%	16V
C41	1-130-777-11	S	CAP, FILM	0.1	5%	100V
C42	1-124-631-11	S	CAP, ELECT	47	20%	16V
C44	1-124-631-11	S	CAP, ELECT	47	20%	16V
C45	1-124-014-11	S	CAP, ELECT	220	20%	16V
C49	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C50	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C53	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C54	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C55	1-124-631-11	S	CAP, ELECT	47	20%	16V
C56	1-124-631-11	S	CAP, ELECT	47	20%	16V
C57 to C63	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C74	1-162-772-21	S	CAP, CERAMIC	3900P	5%	50V
C75	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C76	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C77	1-124-631-11	S	CAP, ELECT	47	20%	16V
C78	1-124-014-11	S	CAP, ELECT	220	20%	16V
C79	1-124-014-11	S	CAP, ELECT	220	20%	16V
C83	1-123-621-11	S	CAP, ELECT	10	20%	25V
CNJ1	1-560-310-11	O	POST HEADER (IL CONNECTOR) 4P			
CNJ2	1-560-310-11	O	POST HEADER (IL CONNECTOR) 4P			
CNJ3 to CNJ6	1-562-454-21	S	CONNECTOR 15P			
CNJ7	T-9414-202-1	O	CN, SIP, PCMT 20P			
D1 to D4	T-9410-657-1	S	DIODE J4			
D5	8-719-991-40	S	DIODE 1N914			
D7 to D13	8-719-991-40	S	DIODE 1N914			
D14	T-9410-657-1	S	DIODE J4			
D16	8-719-991-40	S	DIODE 1N914			
D18	8-719-991-40	S	DIODE 1N914			
D21	T-9410-333-1	S	DIODE			
D22	T-9410-333-1	S	DIODE			
DS1	8-719-812-41	S	DIODE TLR124			
DS3	8-719-812-42	S	DIODE TLY124			
DS6	8-719-812-43	S	DIODE TLG124A			
DS11	8-719-812-43	S	DIODE TLG124A			
IC1	T-9414-285-1	S	HIC L02			
IC2	8-759-990-72	S	IC TL072CP			
IC4	8-759-990-72	S	IC TL072CP			
IC5	8-759-990-72	S	IC TL072CP			
IC6	8-759-032-75	S	IC MC74HC02AN			
IC7	8-759-179-15	S	IC UPC7915H			
IC8	8-759-171-15	S	IC UPC7815			
IC9	8-759-990-72	S	IC TL072CP			
IC11	8-759-990-72	S	IC TL072CP			

Ref. No.	Parts No.	SP	Description			
JW1	1-566-385-11	S	PIN, CONNECTOR 2P			
JW2	1-566-385-11	S	PIN, CONNECTOR 2P			
JW3	1-566-385-11	S	PIN, CONNECTOR 2P			
JW4	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW5	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW6	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW7	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW8	1-566-385-11	S	PIN, CONNECTOR 2P			
JW9	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW10	1-566-385-11	S	PIN, CONNECTOR 2P			
JW11	1-566-385-11	S	PIN, CONNECTOR 2P			
JW12	T-9413-659-1	S	JUMPER WIRES			
JW13	1-566-385-11	S	PIN, CONNECTOR 2P			
JW14	T-9413-659-1	S	JUMPER WIRES			
JW15	1-566-385-11	S	PIN, CONNECTOR 2P			
JW16	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW17	1-566-385-11	S	PIN, CONNECTOR 2P			
JW18	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW19	1-566-385-11	S	PIN, CONNECTOR 2P			
JW20	1-566-385-11	S	PIN, CONNECTOR 2P			
JW21	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW22	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW23	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW24	1-566-385-11	S	PIN, CONNECTOR 2P			
JW25	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW26	1-566-385-11	S	PIN, CONNECTOR 2P			
JW27	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW28	1-566-385-11	S	PIN, CONNECTOR 2P			
JW29	1-566-385-11	S	PIN, CONNECTOR 2P			
JW30	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW31	1-566-385-11	S	PIN, CONNECTOR 2P			
JW32	1-566-385-11	S	PIN, CONNECTOR 2P			
JW1007	1-566-385-11	S	PIN, CONNECTOR 2P			
JW1008	1-566-385-11	S	PIN, CONNECTOR 2P			
K1	1-515-670-11	S	RELAY			
Q1 to Q4	8-729-139-04	S	TRANSISTOR 2N3904			
Q5	8-729-113-08	S	TRANSISTOR 2N3906			
Q6 to Q10	8-729-139-04	S	TRANSISTOR 2N3904			
Q11	8-729-113-08	S	TRANSISTOR 2N3906			
Q12 to Q19	8-729-139-04	S	TRANSISTOR 2N3904			
R6	1-247-826-51	S	RES, CARBON	620	5%	1/4W
R7	1-218-210-51	S	RES, METAL	12.7K	1%	1/6W

Ref. No.	Parts No.	SP	Description			
R8	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R9	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R10	1-218-205-51	S	RES, METAL	6.34K	1%	1/6W
R11	1-247-850-51	S	RES, CARBON	6.2K	5%	1/4W
R12	1-247-850-51	S	RES, CARBON	6.2K	5%	1/4W
R13	1-218-208-51	S	RES, METAL	10.5K	1%	1/6W
R14	1-218-208-51	S	RES, METAL	10.5K	1%	1/6W
R15	1-210-828-11	S	RES, CARBON	4.7M	5%	1/4W
Ref.						
R18	1-247-826-51	S	RES, CARBON	620	5%	1/4W
R26	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R27	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R28	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R30	1-214-583-11	S	RES, METAL	12K	1%	1/8W
R35	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R36	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R37	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R38	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R39 to R46	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R47	1-247-844-51	S	RES, CARBON	3.6K	5%	1/4W
R48	1-247-844-51	S	RES, CARBON	3.6K	5%	1/4W
R49	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R50	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R51	1-247-879-51	S	RES, CARBON	100K	5%	1/4U
R52 to R56	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R57	1-215-431-51	S	RES, METAL	2.7K	1%	1/4W
R58	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R59	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R60	1-215-431-51	S	RES, METAL	2.7K	1%	1/4W
R61	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R62	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R63	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R64	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R65	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R66	1-247-831-51	S	RES, CARBON	1K	5%	1/4W
R67	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R68	1-247-867-51	S	RES, CARBON	33K	5%	1/4W
R69	1-247-792-51	S	RES, CARBON	24	5%	1/4W
R70	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R72	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R79	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R80	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R81	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R82	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R83	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R84	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R85	1-247-871-51	S	RES, CARBON	47K	5%	1/4W
R86 to R89	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R90	1-247-903-51	S	RES, CARBON	1M	5%	1/4W
R91 to R96	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R98	T-9413-637-1	S	RES, METAL	60.4K	1%	1/8W
R99	1-247-867-51	S	RES, CARBON	33K	5%	1/4W
R100	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R101 to R105	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R106	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R107	1-247-855-51	S	RES, CARBON	10K	5%	1/4W

Ref. No.	Parts No.	SP	Description			
R108	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R119	1-247-863-51	S	RES, CARBON	22K	5%	1/4W
R120	1-247-878-51	S	RES, CARBON	91K	5%	1/4W
R121	1-247-862-51	S	RES, CARBON	20K	5%	1/4W
R122	1-247-862-51	S	RES, CARBON	20K	5%	1/4W
R123	T-9411-810-1	S	RES, METAL	24.9K	1%	1/8W
R124	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R125	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R126	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R127 to R129	1-247-871-51	S	RES, CARBON	47K	5%	1/4W
R130	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R131	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R132	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R133	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R134	1-247-856-51	S	RES, CARBON	11K	5%	1/4W
R135	1-247-878-51	S	RES, CARBON	91K	5%	1/4W
R136	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R145	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R146	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R150	1-249-807-51	S	RES, CARBON	100	5%	1/4W
R151	T-9413-659-1	S	JUMPER WIRES			
R152	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
RV1	T-9413-527-1	S	POTENTIOMETER, MINI 100K			
RV2	T-9413-527-1	S	POTENTIOMETER, MINI 100K			
RV4	T-9413-523-1	S	POTENTIOMETER, MINI 5K			
RV6	T-9412-122-1	S	POTENTIOMETER, MINI 5K/5K			
RV7	T-9413-523-1	S	POTENTIOMETER, MINI 5K			
RV9	1-226-698-11	S	RES, ADJ, CERMET 10K			
RV12	T-9413-524-1	S	POTENTIOMETER, MINI 5K			
RV13	T-9413-525-1	S	POTENTIOMETER, MINI 5K			
RV14	T-9413-525-1	S	POTENTIOMETER, MINI 5K			
RV15	T-9414-190-1	S	DUAL POTENTIOMETER 5K/5K			
S3	1-571-199-11	S	SWITCH, PUSH (2 KEY)			
S4	1-571-199-11	S	SWITCH, PUSN (2 KEY)			
S11	1-571-200-11	S	SWITCH, PUSH (3 KEY)			
S14	1-571-200-11	S	SWITCH, PUSH (3 KEY)			
S15	1-571-200-11	S	SWITCH, PUSH (3 KEY)			
S17	1-571-195-11	S	SWITCH, PUSH (1 KEY)			
S19	1-571-195-11	S	SWITCH, PUSH (1 KEY)			
S20	1-571-194-11	S	SWITCH, PUSH (1 KEY)			
S22	1-571-195-11	S	SWITCH, PUSH (1 KEY)			
S23	T-9413-495-1	S	SWITCH, ROTARY			
S24	T-9413-495-1	S	SWITCH, ROTARY			
S26	1-571-193-11	S	SWITCH, PUSH (1 KEY)			
T1	T-9413-494-1	S	TRANSFORMER			
W1 to W4	T-9416-151-1	S	FLEXIBLE FLAT CABLE JUMPERS 18P			

MOS BOARD (MXBK-2906 ONLY)

Ref. No.	Parts No.	SP	Description
-	T-9483-220-1	O	MOUNTED PCB, MOS

(This assembly includes the following parts.)

Ref. No.	Parts No.	SP	Description			
-	1-526-652-21	O	SOCKET, IC (DP) 8P			
-	4-922-102-01	S	NUT (KFS2-M3ET), PEM			
C78 to C89	T-9411-039-1	S	CAP, ELECT	47		16V
C90	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C91	T-9411-039-1	S	CAP, ELECT	47		16V
C92	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C94	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C95	T-9411-039-1	S	CAP, ELECT	47		16V
C96	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C98 to C100	T-9411-039-1	S	CAP, ELECT	47		16V
C101 to C108	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C127 to C130	1-162-798-21	S	CAP, CERAMIC	0.022	10%	50V
CNJ1	1-560-301-11	O	POST HEADER (IL CONNECTOR) 4P			
CNP1	1-564-492-11	O	PIN, CONNECTOR 20P			
CNP2	1-564-490-11	S	PIN, CONNECTOR 10P			
IC13	8-759-990-72	S	IC TL072CP			
IC14	T-9414-285-1	S	HIC L02			
IC15	T-9414-285-1	S	HIC L02			
IC16	8-759-603-37	S	IC M5216P			
IC17	8-759-603-37	S	IC M5216P			
IC18	8-759-990-72	S	IC TL072CP			
R101	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R102	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R103	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R104	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R105	1-247-843-51	S	RES, CARBON	3.3K	5%	1/4W
R106	1-247-843-51	S	RES, CARBON	3.3K	5%	1/4W
R107	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R108	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R109	1-247-843-51	S	RES, CARBON	3.3K	5%	1/4W
R110	1-247-843-51	S	RES, CARBON	3.3K	5%	1/4W
R111 to R114	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R115	1-218-212-51	S	RES, METAL	19.1K	1%	1/6W
R117 to R119	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R120	1-218-212-51	S	RES, METAL	19.1K	1%	1/6W
R122 to R125	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R126	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R127	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R129	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R130 to R134	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R136	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R137	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R158 to R161	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R187 to R190	T-9412-633-1	S	RES, CARBON	100	5%	1W
RV5	T-9413-529-1	S	POTENTIOMETER, MINI 5K/5K			
S11 to S16	1-571-207-11	S	SWITCH, PUSH (6 KEY)			
W1	1-560-306-11	O	POST HEADER (IL CONNECTOR) 12P			

NIF BOARD (MXBK-EI22 ONLY)

Ref. No.	Parts No.	SP	Description			
–	T-9483-748-1	U	COMPLETE PCB, NIF			

(This assembly includes the following parts)

Ref. No.	Parts No.	SP	Description			
–	T-9456-416-1	O	LABEL, SERVICE, NIF			
–	1-526-654-21	S	SOCKET, IC (DP) 16P			
–	1-526-656-21	O	SOCKET, IC (DP) 20P			
–	1-526-653-21	S	SOCKET, IC (DP) 14P			
–	1-526-816-21	O	SOCKET, IC (DP) 24P			
–	T-9416-142-1	O	SOCKET, IC, OPEN FRAME 28P			
C1 to C19	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C22 to C48	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
CNJ1	1-580-711-11	S	CONNECTOR (RIBBON CABLE) 50P			
CNJ2	1-580-711-11	S	CONNECTOR (RIBBON CABLE) 50P			
CNJ3	1-580-710-11	S	CONNECTOR (RIBBON CABLE) 20P			
CNJ6	1-580-710-11	S	CONNECTOR (RIBBON CABLE) 20P			
CNJ7	1-569-524-11	S	CONNECTOR (RIBBON CABLE) 10P			
CNJ8	1-569-524-11	S	CONNECTOR (RIBBON CABLE) 10P			
CNJ1 to CNJ11	1-580-711-11	S	CONNECTOR (RIBBON CABLE) 50P			
CNJ12 to CNJ18	1-569-524-11	S	CONNECTOR (RIBBON CABLE) 10P			
CNJ19	T-9416-139-1	S	CONNECTOR 16P			
CNJ20	T-9416-139-1	S	CONNECTOR 16P			
CNJ21	1-569-524-11	S	CONNECTOR (RIBBON CABLE) 10P			
CNJ22	T-9416-139-1	S	CONNECTOR 16P			
CNJ23	1-569-524-11	S	CONNECTOR (RIBBON CABLE) 10P			
CNJ24	T-9416-139-1	S	CONNECTOR 16P			
CNJ25 to CNJ27	1-569-524-11	S	CONNECTOR (RIBBON CABLE) 10P			
CNJ28	T-9416-139-1	S	CONNECTOR 16P			
CNJ29 to CNJ31	1-569-524-11	S	CONNECTOR (RIBBON CABLE) 10P			
CNJ32	T-9416-139-1	S	CONNECTOR 16P			
CNJ33 to CNJ35	1-569-524-11	S	CONNECTOR (RIBBON CABLE) 10P			
CNJ36	T-9416-139-1	S	CONNECTOR 16P			
CNJ37 to CNJ39	1-569-524-11	S	CONNECTOR (RIBBON CABLE) 10P			
CNJ40	T-9416-139-1	S	CONNECTOR 16P			
CNJ41 to CNJ43	1-569-524-11	S	CONNECTOR (RIBBON CABLE) 10P			
CNJ44	T-9416-139-1	S	CONNECTOR 16P			
CNJ45 to CNJ47	1-569-524-11	S	CONNECTOR (RIBBON CABLE) 10P			
CNJ48	T-9416-139-1	S	CONNECTOR 16P			
CNJ49 to CNJ51	1-569-524-11	S	CONNECTOR (RIBBON CABLE) 10P			
IC1 to IC9	T-9411-242-1	S	IC DG211CJ			
IC10 to IC17	8-759-916-71	S	IC SN74HC244AN			
IC18	8-759-900-08	S	IC SN74LS08NS			
IC19	8-759-916-71	S	IC SN74HC244AN			
IC20	8-759-201-34	S	IC TD62503P			
IC21 to IC24	8-759-006-95	S	IC MC74HC154N			
IC25	T-9416-166-1	S	IC GAL-NIF-V1.0			
IC26	8-759-006-95	S	IC MC74HC154N			
IC31	8-759-032-77	S	IC MC74HC04AN			
JW1 to JW9	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
PS1	1-532-637-11	S	LINK, IC			
R1	1-247-831-51	S	RES, CARBON	1K	5%	1/4W
R2 to R11	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
RN1 to RN12	T-9411-146-1	S	RES NETWORK, SIP, 10K 1/8W			
RN13 to RN15	T-9412-087-1	S	RES NETWORK, SIP, 10K 1/8W			

PMB BOARD (MXP-2916,2916P,2926,2926P,2936,2936P, ONLY)

Ref. No.	Parts No.	SP	Description			
–	T-9483-187-1	O	PMB COMPLE			

(This assembly includes the following parts.)

Ref. No.	Parts No.	SP	Description			
–	T-9456-432-1	O	LABEL, SERVICE, PMB			
–	T-9411-074-1	S	OPEN FRAME SOCKET 8P			
–	T-9451-535-1	S	NUT, HEX 4-40			
–	T-9452-956-1	S	SCREW, BINDING HEAD, STANDARD			
–	T-9452-682-1	O	HEAT SINK, TO-220			
–	T-9481-978-3	O	MIC CBL ASSY			
–	T-9481-980-3	O	DIC CBL ASSY			
–	T-9482-054-1	O	WR SPKR CONN ASSY			
–	1-564-490-11	S	PIN, CONNECTOR 10P			
–	1-564-493-11	O	PIN, CONNECTOR 40P			
C1 to C4	1-123-621-11	S	CAP, ELECT	10	20%	25V
C5	T-9411-323-1	S	CAP, CERAMIC	0.1	20%	100V
C6	T-9411-039-1	S	CAP, ELECT	47		16V
C7 to C9	T-9411-323-1	S	CAP, CERAMIC	0.1	20%	100V
C10	1-123-334-11	S	CAP, ELECT	220	20%	25V
C11	T-9411-323-1	S	CAP, CERAMIC	0.1	20%	100V
C12	1-123-334-11	S	CAP, ELECT	220	20%	25V
C13 to C15	T-9411-039-1	S	CAP, ELECT	47		16V
C16	T-9411-278-1	S	CAP, CERAMIC	22P	10%	100V
C17	T-9411-039-1	S	CAP, ELECT	47		16V
C18	T-9411-278-1	S	CAP, CERAMIC	22P	10%	100V
C19	T-9411-039-1	S	CAP, ELECT	47		16V
C20	T-9411-039-1	S	CAP, ELECT	47		16V
C21	T-9411-278-1	S	CAP, CERAMIC	22P	10%	100V
C22	T-9411-039-1	S	CAP, ELECT	47		16V
C23	T-9411-039-1	S	CAP, ELECT	47		16V
C24	T-9411-278-1	S	CAP, CERAMIC	22P	10%	100V
C26	T-9411-039-1	S	CAP, ELECT	47		16V

Ref. No.	Parts No.	SP	Description			
C27	T-9411-039-1	S	CAP, ELECT	47		16V
C28	T-9411-278-1	S	CAP, CERAMIC	22P	10%	100V
C29	T-9411-039-1	S	CAP, ELECT	47		16V
C30	T-9411-039-1	S	CAP, ELECT	47		16V
C31	T-9411-278-1	S	CAP, CERAMIC	22P	10%	100V
C32	T-9411-039-1	S	CAP, ELECT	47		16V
C33	T-9411-039-1	S	CAP, ELECT	47		16V
C34	1-123-608-11	S	CAP, ELECT	0.22	20%	50V
C35	T-9411-038-1	S	CAP, ELECT	2.2		50V
C36	T-9411-039-1	S	CAP, ELECT	47		16V
C37	1-123-608-11	S	CAP, ELECT	0.22	20%	50V
C38	T-9411-038-1	S	CAP, ELECT	2.2		50V
C42	T-9411-038-1	S	CAP, ELECT	2.2		50V
C40	T-9411-039-1	S	CAP, ELECT	47		16V
C41	1-123-608-11	S	CAP, ELECT	0.22	20%	50V
C43	T-9411-039-1	S	CAP, ELECT	47		16V
C44	1-123-608-11	S	CAP, ELECT	0.22	20%	50V
C45	T-9411-038-1	S	CAP, ELECT	2.2		50V
C46 to C51	T-9411-323-1	S	CAP, CERAMIC	0.1	20%	100V
C52	T-9411-039-1	S	CAP, ELECT	47		16V
C53	T-9411-038-1	S	CAP, ELECT	2.2		50V
C54 to C63	T-9411-323-1	S	CAP, CERAMIC	0.1	20%	100V
C64	1-123-608-11	S	CAP, ELECT	0.22	20%	50V
D1 to D4	T-9410-657-1	S	DIODE J4			
D5 to D14	8-719-991-40	S	DIODE 1N914			
IC1	8-759-171-12	S	IC UPC7812H			
IC2	T-9412-219-1	S	VOLTAGE REGULATOR MC7912CT			
IC3	8-729-304-92	S	TRANSISTOR 2SB649A-C			
IC4	8-759-112-38	S	IC UPC1238V			
IC5 to IC12	8-759-990-72	S	TL072CP			
R1	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R2	1-247-844-51	S	RES, CARBON	3.6K	5%	1/4W
R3	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R4	1-247-844-51	S	RES, CARBON	3.6K	5%	1/4W
R5	1-247-844-51	S	RES, CARBON	3.6K	5%	1/4W
R6	1-247-185-11	S	RES, CARBON	2.7	5%	1/2W
R7	1-247-844-51	S	RES, CARBON	3.6K	5%	1/4W
R8	1-247-862-51	S	RES, CARBON	20K	5%	1/4W
R9	1-247-844-51	S	RES, CARBON	3.6K	5%	1/4W
R10	1-247-862-51	S	RES, CARBON	20K	5%	1/4W
R11	1-247-844-51	S	RES, CARBON	3.6K	5%	1/4W
R12	1-247-862-51	S	RES, CARBON	20K	5%	1/4W
R13	1-247-844-51	S	RES, CARBON	3.6K	5%	1/4W
R14	1-247-862-51	S	RES, CARBON	20K	5%	1/4W
R15	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R16	1-247-844-51	S	RES, CARBON	3.6K	5%	1/4W
R17	1-247-862-51	S	RES, CARBON	20K	5%	1/4W
R18	1-247-844-51	S	RES, CARBON	3.6K	5%	1/4W
R19	1-247-862-51	S	RES, CARBON	20K	5%	1/4W
R20	1-247-890-51	S	RES, CARBON	300K	5%	1/4W
R21	1-247-890-51	S	RES, CARBON	300K	5%	1/4W
R22	1-247-883-51	S	RES, CARBON	150K	5%	1/4W
R23	1-247-870-51	S	RES, CARBON	43K	5%	1/4W
R24	1-247-862-51	S	RES, CARBON	20K	5%	1/4W
R25	1-247-862-51	S	RES, CARBON	20K	5%	1/4W
R26	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R27	1-247-890-51	S	RES, CARBON	300K	5%	1/4W
R28	1-247-890-51	S	RES, CARBON	300K	5%	1/4W
R29	1-247-883-51	S	RES, CARBON	150K	5%	1/4W
R30	1-247-870-51	S	RES, CARBON	43K	5%	1/4W
R31	1-247-862-51	S	RES, CARBON	20K	5%	1/4W
R32	1-247-862-51	S	RES, CARBON	20K	5%	1/4W
R33	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R34	1-247-890-51	S	RES, CARBON	300K	5%	1/4W
R35	1-247-890-51	S	RES, CARBON	300K	5%	1/4W
R36	1-247-883-51	S	RES, CARBON	150K	5%	1/4W
R37	1-247-870-51	S	RES, CARBON	43K	5%	1/4W
R38	1-247-862-51	S	RES, CARBON	20K	5%	1/4W
R39	1-247-862-51	S	RES, CARBON	20K	5%	1/4W
R40	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R41	1-247-890-51	S	RES, CARBON	300K	5%	1/4W
R42	1-247-890-51	S	RES, CARBON	300K	5%	1/4W
R43	1-247-870-51	S	RES, CARBON	43K	5%	1/4W
R44	1-247-883-51	S	RES, CARBON	150K	5%	1/4W
R45	1-247-862-51	S	RES, CARBON	20K	5%	1/4W
R46	1-247-862-51	S	RES, CARBON	20K	5%	1/4W
R47	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R48	1-247-890-51	S	RES, CARBON	300K	5%	1/4W
R49	1-247-890-51	S	RES, CARBON	300K	5%	1/4W
R50	1-247-883-51	S	RES, CARBON	150K	5%	1/4W
R51	1-247-870-51	S	RES, CARBON	43K	5%	1/4W
R52	1-247-862-51	S	RES, CARBON	20K	5%	1/4W
R53	1-247-862-51	S	RES, CARBON	20K	5%	1/4W
R54	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
RV1 to RV6	1-228-530-11	S	RES, ADJ, CERMET 100K			

PPM BOARD (MXP-2916P,2926P,2936P ONLY)

-	T-9481-895-1	U	PWA, PPM			

(This assembly includes the following parts.)

-	T-9411-075-1	S	OPEN FRAME SOCKET 14P			
-	T-9411-076-1	S	OPEN FRAME SOCKET 16P			
-	1-564-490-11	S	PIN, CONNECTOR 1OP			
C1	T-9413-565-1	S	CAP, FILM	0.47	10%	100V
C2	T-9411-323-1	S	CAP, CERAMIC	0.1	20%	100V
C3	T-9411-323-1	S	CAP, CERAMIC	0.1	20%	100V
C4	T-9411-292-1	S	CAP, CERAMIC	330P	10%	100V
D1 to D4	8-719-991-40	S	DIODE 1N914			
IC1	8-759-990-04	S	IC TL074CN			
IC2	T-9412-795-1	S	TRANSISTOR ARRAY, NPN CA3083			
JW1	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW2	1-566-385-11	S	PIN, CONNECTOR 2P			

Ref. No.	Parts No.	SP	Description			
Q1	8-729-113-08	S	TRANSISTOR 2N3906			
R1 to R5	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R6	T-9413-641-1	S	RES, METAL	3.65K	1%	1/8W
R7	1-210-821-11	S	RES, CARBON	2.2	5%	1/4W
R8	1-214-585-11	S	RES, METAL	15K	1%	1/8W
R9	1-214-585-11	S	RES, METAL	15K	1%	1/8W
R10	T-9411-693-1	S	RES, METAL	4.75K	1%	1/8W
R11	T-9411-845-1	S	RES, METAL	59K	1%	1/8W
R12	1-214-585-11	S	RES, METAL	15K	1%	1/8W
R13	T-9411-832-1	S	RES, METAL	43.2K	1%	1/8W
R14	T-9411-748-1	S	RES, METAL	8.45K	1%	1/8W
R15	T-9411-622-1	S	RES, METAL	909	1%	1/8W
R16	T-9411-621-1	S	RES, METAL	887	1%	1/8W
R17	T-9411-567-1	S	RES, METAL	243	1%	1/8W
R18	T-9411-606-1	S	RES, METAL	619	1%	1/8W
R19	1-247-840-51	S	RES, CARBON	2.4K	5%	1/4W
R20	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R21	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R22	1-247-887-51	S	RES, CARBON	220K	5%	1/4W
R23	T-9411-708-1	S	RES, METAL	6.81K	1%	1/8W
R24	1-215-822-11	S	RES, METAL	47K	1%	1/8W
RV1	1-228-461-11	S	RES, ADJ, CERMET 50K			
RV2	1-226-698-11	S	RES, ADJ, CERMET 10K			
RV3	1-226-698-11	S	RES, ADJ, CERMET 10K			
RV4	1-228-459-11	S	RES, ADJ, CERMET 10K			

SMM BOARD (MXBK-2908 ONLY)

Ref. No.	Parts No.	SP	Description
-	T-9486-045-A	O	MOUNTED PCB, SMM

(This assembly includes the following parts.)

Ref. No.	Parts No.	SP	Description			
-	T-9456-431-1	O	LABEL, SERVICE, SMM			
-	4-922-102-01	S	NUT (KFS2-M3ET), PEM			
-	4-922-103-01	S	SPRING			
C1	1-126-252-11	S	CAP, ELECT	1000	20%	6.3V
C2	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C3	1-124-631-11	S	CAP, ELECT	47	20%	16V
C4	1-124-631-11	S	CAP, ELECT	47	20%	16V
C5	1-124-014-11	S	CAP, ELECT	220	20%	16V
C6	1-124-014-11	S	CAP, ELECT	220	20%	16V
C7	1-162-774-21	S	CAP, CERAMIC	5600P	5%	50V
C8	1-126-252-11	S	CAP, ELECT	1000	20%	6.3V
C9	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C10	1-124-631-11	S	CAP, ELECT	47	20%	16V
C11	1-124-631-11	S	CAP, ELECT	47	20%	16V
C12	1-124-014-11	S	CAP, ELECT	220	20%	16V
C13	1-124-014-11	S	CAP, ELECT	220	20%	16V
C14	1-162-774-21	S	CAP, CERAMIC	5600P	5%	50V
C15	1-124-631-11	S	CAP, ELECT	47	20%	16V
C16	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C17	1-124-631-11	S	CAP, ELECT	47	20%	16V
C18	1-124-631-11	S	CAP, ELECT	47	20%	16V
C19	1-124-014-11	S	CAP, ELECT	220	20%	16V
C20	1-124-014-11	S	CAP, ELECT	220	20%	16V
C21	1-162-774-21	S	CAP, CERAMIC	5600P	5%	50V
C22	1-124-631-11	S	CAP, ELECT	47	20%	16V
C23	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C24	1-124-631-11	S	CAP, ELECT	47	20%	16V
C25	1-124-631-11	S	CAP, ELECT	47	20%	16V
C26	1-124-014-11	S	CAP, ELECT	220	20%	16V
C27	1-124-014-11	S	CAP, ELECT	220	20%	16V
C28	1-162-774-21	S	CAP, CERAMIC	5600P	5%	50V
C29	1-126-252-11	S	CAP, ELECT	1000	20%	6.3V
C30	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C31	1-124-631-11	S	CAP, ELECT	47	20%	16V
C32	1-124-014-11	S	CAP, ELECT	220	20%	16V
C33	1-124-014-11	S	CAP, ELECT	220	20%	16V
C34	1-124-631-11	S	CAP, ELECT	47	20%	16V
C35	1-162-772-21	S	CAP, CERAMIC	3900P	5%	50V
C36	1-126-252-11	S	CAP, ELECT	1000	20%	6.3V
C37	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C38	1-124-631-11	S	CAP, ELECT	47	20%	16V
C39	1-124-014-11	S	CAP, ELECT	220	20%	16V
C40	1-124-014-11	S	CAP, ELECT	220	20%	16V
C41	1-124-631-11	S	CAP, ELECT	47	20%	16V
C42	1-162-772-21	S	CAP, CERAMIC	3900P	5%	50V
C43	1-124-631-11	S	CAP, ELECT	47	20%	16V
C44	1-124-631-11	S	CAP, ELECT	47	20%	16V
C45	1-124-014-11	S	CAP, ELECT	220	20%	16V
C46	1-124-014-11	S	CAP, ELECT	220	20%	16V
C47	1-162-772-21	S	CAP, CERAMIC	3900P	5%	50V
C48	1-124-631-11	S	CAP, ELECT	47	20%	16V
C49	1-124-631-11	S	CAP, ELECT	47	20%	16V
C50	1-124-014-11	S	CAP, ELECT	220	20%	16V
C51	1-124-014-11	S	CAP, ELECT	220	20%	16V
C52	1-162-772-21	S	CAP, CERAMIC	3900P	5%	50V
C53	1-124-014-11	S	CAP, ELECT	220	20%	16V
C54	1-124-014-11	S	CAP, ELECT	220	20%	16V
C55	1-162-772-21	S	CAP, CERAMIC	3900P	5%	50V
C56	1-162-782-21	S	CAP, CERAMIC	1000P	1%	50V
C57	1-124-631-11	S	CAP, ELECT	47	20%	16V
C58 to C62	1-126-621-41	S	CAP, ELECT	10	20%	35V
C63	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C64	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C65	1-123-621-41	S	CAP, ELECT	10	20%	35V
C66	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C67	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C68	1-162-782-21	S	CAP, CERAMIC	1000P	1%	50V
C69	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C70	1-123-330-11	S	CAP, ELECT	22	20%	25V
C71	1-124-230-51	S	CAP, ELECT	47	20%	10V
CNJ1 to CNJ3	1-560-301-11	O	POST HEADER (IL CONNECTOR) 4P			
CNJ4	1-562-454-21	S	CONNECTOR 15P			
CNJ5	1-562-454-21	S	CONNECTOR 15P			
D1 to D7	8-719-911-19	S	DIODE 1SS119			
D8 to D11	8-719-940-03	S	DIODE 1N4004			
D12 to D17	8-719-911-19	S	DIODE 1SS119			

Ref. No.	Parts No.	SP	Description			
IC1	T-9414-284-2	S	IC ACN-4			
IC2	T-9414-285-1	S	HIC LO-2			
IC3	T-9414-284-2	S	IC ACN-4			
IC4	T-9414-285-1	S	HIC LO-2			
IC5	T-9414-284-2	S	IC ACN-4			
IC6	T-9414-285-1	S	HIC LO-2			
IC7	T-9414-284-2	S	IC ACN-4			
IC8	T-9414-285-1	S	HIC LO-2			
IC9	T-9414-284-2	S	IC ACN-4			
IC10	T-9414-285-1	S	HIC LO-2			
IC11	T-9414-284-2	S	IC ACN-4			
IC12	T-9414-285-1	S	HIC LO-2			
to IC15						
IC16	8-759-000-99	S	IC MC74HC74N			
IC17	8-759-171-15	S	IC UPC7815H			
IC18	8-759-179-15	S	IC UPC7915H			
IC19	8-759-990-04	S	IC TL074CN			
IC20	8-759-990-04	S	IC TLO74CN			
JW1	1-566-385-11	S	PIN, CONNECTOR 2P			
JW2	1-565-413-11	O	RECEPTACLE, CONNENCTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW3	1-566-385-11	S	PIN, CONNECTOR 2P			
JW4	1-565-413-11	O	RECEPTACLE, CONNENCTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW5	1-566-385-11	S	PIN, CONNECTOR 2P			
JW6	1-565-413-11	O	RECEPTACLE, CONNENCTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW7	1-566-385-11	S	PIN, CONNECTOR 2P			
JW8	1-565-413-11	O	RECEPTACLE, CONNENCTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW9	1-566-385-11	S	PIN, CONNECTOR 2P			
JW10	1-565-413-11	O	RECEPTACLE, CONNENCTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW11	1-565-413-11	O	RECEPTACLE, CONNENCTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW12	1-565-413-11	O	RECEPTACLE, CONNENCTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW13	1-566-385-11	S	PIN, CONNECTOR 2P			
JW14	1-566-385-11	S	PIN, CONNECTOR 2P			
JW15	1-565-413-11	O	RECEPTACLE, CONNENCTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW16	1-566-385-11	S	PIN, CONNECTOR 2P			
JW17	1-566-385-11	S	PIN, CONNECTOR 2P			
JW18	1-565-413-11	O	RECEPTACLE, CONNENCTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW19	1-565-413-11	O	RECEPTACLE, CONNENCTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
K1	1-515-670-11	S	RELAY			
K2	1-515-670-11	S	RELAY			
Q3	8-729-139-04	S	TRANSISTOR 2N3904			
to Q8						
R1	T-9411-781-1	S	RES, METAL	12.4K	1%	1/8W
R2	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R3	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R4	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R5	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R6	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R7	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R8	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R9	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R10	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R11	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R12	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R13	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R14	T-9411-781-1	S	RES, METAL	12.4K	1%	1/8W
R15	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R16	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R17	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R18	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R19	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R20	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R21	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R22	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R23	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R24	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R25	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R26	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R27	T-9411-781-1	S	RES, METAL	12.4K	1%	1/8W
R28	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R29	1-247-845-51	S	RES, CARBON	3.9K	5%	1/4W
R30	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R31	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R32	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R33	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R34	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R35	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R36	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R37	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R38	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R39	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R40	T-9411-781-1	S	RES, METAL	12.4K	1%	1/8W
R41	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R42	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R43	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R44	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R45	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R46	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R47	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R48	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R49	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R50	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R51	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R52	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R53	1-247-886-51	S	RES, CARBON	200K	5%	1/4W
R54	1-247-886-51	S	RES, CARBON	200K	5%	1/4W
R55	1-247-844-51	S	RES, CARBON	3.6K	5%	1/4W
R56	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R57	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R58	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R59	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R60	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R61	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R62	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R63	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R64	1-247-852-11	S	RES, CARBON	7.5K	5%	1/4W
R65	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R66	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R67	1-247-807-51	S	RES, CARBON	100	5%	1/4W

Ref. No.	Parts No.	SP	Description			
R68	1-247-844-51	S	RES, CARBON	3.6K	5%	1/4W
R69	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R70	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R72	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R73	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R74	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R75	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R76	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R77	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R78	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R80	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R81	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R82	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R85	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R86	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R87	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R88	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R89	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R90	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R91	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R92	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R93	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R94	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R97	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R98	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R99	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R100	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R101	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R102	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R103	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R104	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R105	1-247-866-51	S	RES, CARBON	30K	5%	1/4W
R106	1-247-866-51	S	RES, CARBON	30K	5%	1/4W
R109	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R110	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R111	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R112	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R113	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R114	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R115	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R116	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R117 to R119	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R120	1-247-867-51	S	RES, CARBON	33K	5%	1/4W
R121	1-249-867-51	S	RES, CARBON	33K	5%	1/4W
R122	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R123	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R124 to R126	1-249-867-51	S	RES, CARBON	33K	5%	1/4W
R127	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R128	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R129	1-249-435-11	S	RES, CARBON	33K	5%	1/4W
R130	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R131 to R134	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R135	1-247-807-51	S	RES, CARBON	100	5%	1/4W
RV1	T-9413-576-1	S	POTENTIOMETER, MINI 5K/5K			
RV2	T-9413-524-1	S	POTENTIOMETER, MINI 5K			
RV3	T-9413-524-1	S	POTENTIOMETER, MINI 5K			
RV4	T-9413-529-1	S	POTENTIOMETER, MINI 5K/5K			
RV5	T-9413-680-1	S	POT 2K 1-TURN			
RV6	T-9413-680-1	S	POT 2K 1-TURN			
S1 to S4	1-571-193-11	S	SWITCH, PUSH (1 KEY)			
S5	1-571-192-11	S	SWITCH, PUSH (1 KEY)			
S8	T-9413-495-1	S	SWITCH, ROTARY			
T1 to T9	T-9413-494-1	S	TRANSFORMER			

SNQ BOARD (MXBK-2909,2909E ONLY)

-	T-9483-731-2	O	MOUNTED PCB, SNQ			

(This assembly includes the following parts.)

-	T-9456-429-2	O	LABEL. SERVICE, SNQE			
-	1-526-652-21	S	SOCKET, IC (DP) 8P			
-	1-526-653-21	S	SOCKET, IC (DP) 14P			
-	4-922-102-01	S	NUT (KFS2-M3ET), PEM			
C1	T-9413-735-1	S	CAP, ELECT	1000	20%	6V
C2	1-124-631-11	S	CAP, ELECT	47	20%	16V
C3	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C5	1-124-631-11	S	CAP, ELECT	47	20%	16V
C11	1-124-631-11	S	CAP, ELECT	47	20%	16V
C12	1-124-631-11	S	CAP, ELECT	47	20%	16V
C13	1-162-772-21	S	CAP, CERAMIC	3900P	5%	50V
C14	1-124-014-11	S	CAP, ELECT	220	20%	16V
C15	1-124-014-11	S	CAP, ELECT	220	20%	16V
C16	1-124-631-11	S	CAP, ELECT	47	20%	16V
C17	1-124-646-11	S	CAP, ELECT	22	20%	16V
C29	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C30	1-124-631-11	S	CAP, ELECT	47	20%	16V
C31	1-124-631-11	S	CAP, ELECT	47	20%	16V
C37	1-108-626-61	S	CAP, MYLAR	0.01	10%	100V
C38	1-124-631-11	S	CAP, ELECT	47	20%	16V
C39	1-124-631-11	S	CAP, ELECT	47	20%	16V
C40	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C41	1-162-794-21	S	CAP, CERAMIC	0.01	10%	50V
C42 to C45	1-123-621-11	S	CAP, ELECT	10	20%	25V
C47	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C48	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C49	1-124-631-11	S	CAP, ELECT	47	20%	16V
C50 to C66	1-162-806-11	S	CAP, CERAMIC	0.1	10%	50V
C73	1-124-646-11	S	CAP, ELECT	22	20%	16V
C74	1-124-646-11	S	CAP, ELECT	22	20%	16V
C101	T-9413-735-1	S	CAP, ELECT	1000	20%	6V
C102	1-124-631-11	S	CAP, ELECT	47	20%	16V
C103	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C105	1-124-631-11	S	CAP, ELECT	47	20%	16V
C111	1-124-631-11	S	CAP, ELECT	47	20%	16V
C113	1-162-772-21	S	CAP, CERAMIC	3900P	5%	50V
C114	1-124-014-11	S	CAP, ELECT	220	20%	16V
C115	1-124-014-11	S	CAP, ELECT	220	20%	16V
C116	1-124-631-11	S	CAP, ELECT	47	20%	16V
C129	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C130	1-124-631-11	S	CAP, ELECT	47	20%	16V

Ref. No.	Parts No.	SP	Description			
C131	1-124-631-11	S	CAP, ELECT	47	20%	16V
C136	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C137	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C138	1-124-646-11	S	CAP, ELECT	22	20%	16V
to C140						
C142	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C143	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C144	1-123-621-11	S	CAP, ELECT	10	20%	25V
CNJ3	1-562-454-21	S	CONNECTOR 15P			
CNJ4	1-562-454-21	S	CONNECTOR 15P			
CNJ6	1-562-454-21	S	CONNECTOR 15P			
CNJ7	1-562-454-21	S	CONNECTOR 15P			
CNJ8	1-560-310-11	O	POST HEADER(IL CONNECTOR)4P			
CNJ9	1-560-301-11	O	POST HEADER(IL CONNECTOR)4P			
CNJ10	1-564-490-11	S	PIN, CONNECTOR 10P			
CNJ11	T-9414-202-1	S	CN, SIP, PCMT 20P			
D1	8-719-991-40	S	DIODE 1N914			
to D6						
D7	T-9410-657-1	S	DIODE J4			
D8	8-719-991-40	S	DIODE 1N914			
D10	T-9410-657-1	S	DIODE J4			
to D13						
D14	8-719-991-40	S	DIODE 1N914			
to D19						
D21	T-9410-333-1	S	DIODE 1N34			
D22	T-9410-333-1	S	DIODE 1N34			
DS4	8-719-812-42	S	DIODE TLY 124			
DS5	8-719-812-42	S	DIODE TLY 124			
DS6	8-719-812-43	S	DIODE TLG124A			
DS7	8-719-812-41	S	DIODE TLR124			
DS8	8-719-900-40	S	DIODE PR5533T			
DS9	8-719-900-40	S	DIODE PR5533T			
IC1	8-759-990-72	S	IC TL072CP			
IC2	T-9414-285-1	S	HIC L02			
IC4	T-9416-048-1	S	IC TL064BCN			
IC5	8-759-990-72	S	IC TL072CP			
to IC8						
IC9	8-759-032-75	S	IC MC74HCO2AN			
IC10	8-759-179-15	S	IC UPC7915H			
IC11	8-759-171-15	S	IC UPC7815H			
IC14	8-759-990-72	S	IC TL072CP			
IC15	8-759-990-72	S	IC TL072CP			
IC101	8-759-990-72	S	IC TL072CP			
IC102	T-9414-285-1	S	HIC L02			
JW1	1-566-385-11	S	PIN, CONNECTOR 2P			
	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
JW2	1-566-385-11	S	PIN, CONNECTOR 2P			
JW9	1-566-385-11	S	PIN, CONNECTOR 2P			
JW11	1-566-385-11	S	PIN, CONNECTOR 2P			
JW12	1-566-385-11	S	PIN, CONNECTOR 2P			
JW14	1-566-385-11	S	PIN, CONNECTOR 2P			
JW15	1-566-385-11	S	PIN, CONNECTOR 2P			
	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
JW16	1-566-385-11	S	PIN, CONNECTOR 2P			

Ref. No.	Parts No.	SP	Description			
JW17						
to JW19	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW21						
to JW23	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW24	1-566-385-11	S	PIN, CONNECTOR 2P			
JW25	1-566-385-11	S	PIN, CONNECTOR 2P			
JW26	1-566-385-11	S	PIN, CONNECTOR 2P			
JW27	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW101	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW102	1-566-385-11	S	PIN, CONNECTOR 2P			
JW104	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW105	1-566-385-11	S	PIN, CONNECTOR 2P			
JW106	1-566-385-11	S	PIN, CONNECTOR 2P			
JW107	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW108	1-566-385-11	S	PIN, CONNECTOR 2P			
JW109	1-566-385-11	S	PIN, CONNECTOR 2P			
K1	1-515-670-11	S	RELAY			
K2	1-515-670-11	S	RELAY			
Q1	8-729-139-04	S	TRANSISTOR 2N3904			
Q2	8-729-113-0S	S	TRANSISTOR 2N3906			
Q3	8-729-139-04	S	TRANSISTOR 2N3904			
Q4	8-729-139-04	S	TRANSISTOR 2N3904			
Q5	8-729-113-0S	S	TRANSISTOR 2N3906			
Q6	8-729-139-04	S	TRANSISTOR 2N3904			
to Q9						
R1	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R2	1-214-583-11	S	RES, METAL	12K	5%	1/8W
R10	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R11	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R12	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R13	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R14	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R15	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R16	T-9411-516-1	S	RES, METAL	10K	1%	1/8W
R17	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R2S	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R29	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R31	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R32	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R33	1-218-202-51	S	RES, METAL	4.99K	1%	1/6W
R34	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R35	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R36	1-218-198-51	S	RES, METAL	2.55K	1%	1/6W
R37	1-218-198-51	S	RES, METAL	2.55K	1%	1/6W
R38	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R39	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
to R43						
R44	1-247-831-51	S	RES, CARBON	1K	5%	1/4W
R45	1-247-855-51	S	RES, CARBON	10K	5%	1/4W

Ref. No.	Parts No.	SP	Description			
R46	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R47	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R48	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R49	1-247-792-51	S	RES, CARBON	24	5%	1/4W
R50	1-247-867-51	S	RES, CARBON	33K	5%	1/4W
R52	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R53	1-247-903-51	S	RES, CARBON	1M	5%	1/4W
R54 to R56	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R57	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R58	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R59	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R61	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R62	1-247-886-51	S	RES, CARBON	200K	5%	1/4W
R63	1-247-867-51	S	RES, CARBON	33K	5%	1/4W
R64	T-9413-637-1	S	RES, METAL	60.4K	1%	1/8W
R65	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R66	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R67	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R68 to R75	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R76 to R79	1-247-854-51	S	RES, CARBON	9.1K	5%	1/4W
R80 to R83	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R84	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R85	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R94	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R95	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R96	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R97	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R101	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R102	1-214-583-11	S	RES, METAL	12K	5%	1/8W
R110	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R111	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R112	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R113	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R114	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R115	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R116	T-9411-516-1	S	RES, METAL	10K	1%	1/8W
R128	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R132	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R133	1-218-202-51	S	RES, METAL	4.99K	1%	1/6W
R134	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R135	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R136	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R137	1-249-855-51	S	RES, CARBON	10K	5%	1/4W
R13S	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R139	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R150 to R152	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R162	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R163	1-247-886-51	S	RES, CARBON	200K	5%	1/4W
R164	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R165	1-214-583-11	S	RES, METAL	12K	1%	1/8W
R166	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R170	1-247-826-51	S	RES, CARBON	620	5%	1/4W
R171	1-247-826-51	S	RES, CARBON	620	5%	1/4W
R172	1-247-863-51	S	RES, CARBON	22K	5%	1/4W
R173	1-247-879-51	S	RES, CARBON	100K	5%	1/4W

Ref. No.	Parts No.	SP	Description			
R174	T-9411-529-1	S	RES, METAL	100	1%	1/8W
R175	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R176	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R177	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R180	T-9413-659-1	S	JUMPER WIRES			
RV1	T-9413-627-3	S	POTENTIOMETER, MINI 5K/5K			
RV6	T-9413-626-1	S	POTENTIOMETER, MINI 5K/5K			
RVS	T-9413-626-1	S	POTENTIOMETER, MINI 5K/5K			
RV10	T-9413-630-3	S	POTENTIOMETER, MINI 5K/5K			
RV11	T-9413-629-1	S	POTENTIOMETER, MINI 5K/5K			
RV12	1-228-459-11	S	RES, ADJ, CERMET 10K			
RV13	T-9414-190-1	S	DUAL POTENTIOMETER 5K/5K			
S1 to S3	1-571-211-11	S	SWITCH, PUSH (3 KEY)			
S7	1-571-195-11	S	SWITCH, PUSH (1 KEY)			
S10	1-571-197-11	S	SWITCH, PUSH (2 KEY)			
S11	1-571-197-11	S	SWITCH, PUSH (2 KEY)			
S13	1-571-194-11	S	SWITCH, PUSH (1 KEY)			
S14	1-571-195-11	S	SWITCH, PUSH (1 KEY)			
S15	1-571-195-11	S	SWITCH, PUSH (1 KEY)			
S23	T-9413-495-1	S	SWITCH, ROTARY			
S24	T-9413-495-1	S	SWITCH, ROTARY			
S26	1-571-193-11	S	SWITCH, PUSH (1 KEY)			
S4A	T-9413-746-1	S	JUMPER WIRES			
S4B	T-9413-746-1	S	JUMPER WIRES			
T1	T-9413-494-1	S	TRANSFORMER			
T101	T-9413-494-1	S	TRANSFORMER			
W1 to W3	T-9416-151-1	O	FLEXIBLE FLAT CABLE JUMPERS 18P			
W4	T-9416-149-1	O	FLEXIBLE FLAT CABLE JUMPERS 9P			

SQS BOARD (MXBK-2909,2909E ONLY)

-	T-9483-732-1	O	MOUNTED PCB, SQS			

(This assembly includes the following parts)

-	1-526-652-21	S	SOCKET, IC (DP) 8P			
-	4-922-102-01	S	NUT (KFS2-M3ET), PEM			
C18 to C20	1-124-631-11	S	CAP, ELECT	47	20%	16V
C21	1-162-761-21	S	CAP, CERAMIC	470P	5%	50V
C22	1-162-761-21	S	CAP, CERAMIC	470P	5%	50V
C32	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C33	1-124-631-11	S	CAP, ELECT	47	20%	16V
C34	1-124-631-11	S	CAP, ELECT	47	20%	16V
C35	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C36	1-124-631-11	S	CAP, ELECT	47	20%	16V
C46	1-124-631-11	S	CAP, ELECT	47	20%	16V
C71	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C72	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C112	1-124-631-11	S	CAP, ELECT	47	20%	16V
C118 to C120	1-124-631-11	S	CAP, ELECT	47	20%	16V

Ref. No.	Parts No.	SP	Description
C121	1-162-761-21	S	CAP, CERAMIC 470P 5% 50V
C122	1-162-761-21	S	CAP, CERAMIC 470P 5% 50V
C132	1-124-631-11	S	CAP, ELECT 47 20% 16V
C133	1-124-631-11	S	CAP, ELECT 47 20% 16V
C134	1-162-806-21	S	CAP, CERAMIC 0.1 10% 50V
C135	1-162-806-21	S	CAP, CERAMIC 0.1 10% 50V
CNP10	1-939-543-12	O	HARNESS (LTC)
DS1	8-719-812-42	S	DIODE TLY124
DS2	8-719-812-43	S	DIODE TLG124A
DS3	8-719-812-41	S	DIODE TLR124
IC12	8-759-990-72	S	IC TL072CP
IC13	8-759-990-72	S	IC TL072CP
JW28	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P
	1-566-385-11	S	PIN, CONNECTOR 2P
JW29	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P
	1-566-385-11	S	PIN, CONNECTOR 2P
JW30 to JW33	1-566-385-11	S	PIN, CONNECTOR 2P
JW34	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P
	1-566-385-11	S	PIN, CONNECTOR 2P
JW35	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P
	1-566-385-11	S	PIN, CONNECTOR 2P
L1	T-9412-802-1	S	CHOKE COIL 220UH
L2	T-9412-802-1	S	CHOKE COIL 220UH
L101	T-9412-802-1	S	CHOKE COIL 220UH
L102	T-9412-802-1	S	CHOKE COIL 220UH
R18	1-214-588-11	S	RES, METAL 20K 1% 1/8W
R19	1-218-206-51	S	RES, METAL 6.65K 1% 1/6W
R86	1-247-852-51	S	RES, CARBON 7.5K 5% 1/4W
R87	1-247-847-51	S	RES, CARBON 4.7K 5% 1/4W
R88	1-215-431-51	S	RES, METAL 2.7K 1% 1/6W
R89	1-247-847-51	S	RES, CARBON 4.7K 5% 1/4W
R90	1-215-431-51	S	RES, METAL 2.7K 1% 1/6W
R91	1-247-852-51	S	RES, CARBON 7.5K 5% 1/4W
R92	1-247-879-51	S	RES, CARBON 100K 5% 1/4W
R93	1-247-879-51	S	RES, CARBON 100K 5% 1/4W
R118	1-214-588-11	S	RES, METAL 20K 1% 1/8W
R119	1-218-206-51	S	RES, METAL 6.65K 1% 1/6W
R129	1-247-879-51	S	RES, CARBON 100K 5% 1/4W
R131	1-247-879-51	S	RES, CARBON 100K 5% 1/4W
R153	T-9411-791-1	S	RES, METAL 15.8K 1% 1/8W
R154	T-9411-697-1	S	RES, METAL 5.23K 1% 1/8W
R155	1-247-879-51	S	RES, CARBON 100K 5% 1/4W
R156	T-9411-791-1	S	RES, METAL 15.8K 1% 1/8W
R157	T-9411-697-1	S	RES, METAL 5.23K 1% 1/8W
R158 to R160	1-247-879-51	S	RES, CARBON 100K 5% 1/4W
R167	1-247-855-51	S	RES, CARBON 10K 5% 1/4W
R168	1-247-855-51	S	RES, CARBON 10K 5% 1/4W
R169	T-9411-605-1	S	RES, METAL 604 1% 1/8W
R170	T-9411-605-1	S	RES, METAL 604 1% 1/8W
RV7	T-9412-122-1	S	POTENTIOMETER, MINI 5K/5K
RV9	T-9413-528-1	S	POTENTIOMETER, MINI 5K/5K

Ref. No.	Parts No.	SP	Description
S5A	T-9413746-1	S	JUMPER WIRES
S5B	T-9413746-1	S	JUMPER WIRES
S6	1-571-198-11	S	SWITCH, PUSH (2 KEY)
S8	1-571-198-11	S	SWITCH, PUSH (2 KEY)
S9	1-571-196-11	S	SWITCH, PUSH (1 KEY)
S12	1-571-193-11	S	SWITCH, PUSH (1 KEY)
S16 to S19	1-571-205-11	S	SWITCH, PUSH (4 KEY)
S20 to S22	1-571-200-11	S	SWITCH, PUSH (3 KEY)

STM BOARD (MXBK-2904,2904E ONLY)

Ref. No.	Parts No.	SP	Description
–	T-9483-002-1	O	MOUNTED PCB, STM

(This assembly includes the following parts.)

Ref. No.	Parts No.	SP	Description
–	T-9456-424-2	O	LABEL, SERVICE, STME
–	1-526-652-21	S	SOCKET, IC (DP) 8P
–	1-526-653-21	S	SOCKET, IC (DP) 14P
–	T-9416-147-1	O	HEAT SINK, CLIP TYPE
–	4-922-102-01	S	NVT (KF52-M3ET), PEM
C1	T-9413-735-1	S	CAP, ELECT 1000 20% 6V
C2	1-124-631-11	S	CAP, ELECT 47 20% 16V
C3	1-162-741-21	S	CAP, CERAMIC 22P 5% 50V
C5	1-124-631-11	S	CAP, ELECT 47 20% 16V
C6	1-124-631-11	S	CAP, ELECT 47 20% 16V
C7	1-108-793-11	S	CAP, MYLAR 0.0012 5% 50V
C8	1-108-811-71	S	CAP, MYLAR 0.039 5% 50V
C9	1-162-741-21	S	CAP, CERAMIC 22P 5% 50V
C10 to C12	1-124-631-11	S	CAP, ELECT 47 20% 16V
C13	1-162-772-21	S	CAP, CERAMIC 3900P 5% 50V
C14	1-124-014-11	S	CAP, ELECT 220 20% 16V
C15	1-124-014-11	S	CAP, ELECT 220 20% 16V
C16	1-124-631-11	S	CAP, ELECT 47 20% 16V
C17	1-124-646-11	S	CAP, ELECT 22 20% 16V
C29	1-162-741-21	S	CAP, CERAMIC 22P 5% 50V
C30	1-124-631-11	S	CAP, ELECT 47 20% 16V
C31	1-124-631-11	S	CAP, ELECT 47 20% 16V
C37	1-108-626-61	S	CAP, MYLAR 0.01 10% 100V
C38	1-124-631-11	S	CAP, ELECT 47 20% 6V
C39	1-124-631-11	S	CAP, ELECT 47 20% 6V
C40	1-162-806-21	S	CAP, CERAMIC 0.1 10% 50V
C41	1-162-794-21	S	CAP, CERAMIC 0.01 10% 50V
C42 to C45	1-123-621-11	S	CAP, ELECT 10 20% 25V
C47	1-162-806-21	S	CAP, CERAMIC 0.1 10% 50V
C48	1-162-806-21	S	CAP, CERAMIC 0.1 10% 50V
C49	1-124-631-11	S	CAP, ELECT 47 20% 16V
C50 to C66	1-162-806-21	S	CAP, CERAMIC 0.1 10% 50V
C73	1-124-646-11	S	CAP, ELECT 22 20% 16V
C74	1-124-646-11	S	CAP, ELECT 22 20% 16V
C101	T-9413-735-1	S	CAP, ELECT 1000 20% 6V
C102	1-124-631-11	S	CAP, ELECT 47 20% 16V
C103	1-162-741-21	S	CAP, CERAMIC 22P 5% 50V

Ref. No.	Parts No.	SP	Description
C105	1-124-631-11	S	CAP, ELECT 47 20% 16V
C106	1-124-631-11	S	CAP, ELECT 47 20% 16V
C107	1-108-793-11	S	CAP, MYLAR 0.0012 5% 50V
C108	1-108-811-71	S	CAP, MYLAR 0.039 5% 50V
C109	1-162-741-21	S	CAP, CERAMIC 22P 5% 50V
C110	1-124-631-11	S	CAP, ELECT 47 20% 16V
C111	1-124-631-11	S	CAP, ELECT 47 20% 16V
C113	1-162-772-21	S	CAP, CERAMIC 3900P 5% 50V
C114	1-124-014-11	S	CAP, ELECT 220 20% 16V
C115	1-124-014-11	S	CAP, ELECT 220 20% 16V
C116	1-124-631-11	S	CAP, ELECT 47 20% 16V
C129	1-162-741-21	S	CAP, CERMIC 22P 5% 50V
C130	1-124-631-11	S	CAP, ELECT 47 20% 16V
C131	1-124-631-11	S	CAP, ELECT 47 20% 16V
C136	1-162-806-21	S	CAP, CERAMIC 0.1 10% 50V
C137	1-162-806-21	S	CAP, CERAMIC 0.1 10% 50V
C138 to C140	1-124-646-11	S	CAP, ELECT 22 20% 16V
C142	1-162-806-21	S	CAP, CERAMIC 0.1 10% 50V
C143	1-162-806-21	S	CAP, CERAMIC 0.1 10% 50V
C144	1-123-621-11	S	CAP, ELECT 10 20% 25V
CNJ3	1-562-454-21	S	CONNCTOR 15P
CNJ4	1-562-454-21	S	CONNCTOR 15P
CNJ6	1-562-454-21	S	CONNCTOR 15P
CNJ7	1-562-454-21	S	CONNCTOR 15P
CNJ8	1-560-310-11	O	POST HEADER (IL CONNECTOR)4P
CNJ9	1-560-301-11	O	POST HEADER (IL CONNECTOR)4P
CNJ10	1-564-490-11	O	PIN, CONNECTOR 1OP
CNJ11	T-9414-202-1	O	CN, SIP, PCMT 20P
D1 to D6	8-719-991-40	S	DIODE 1N914
D7	T-9410-657-1	S	DIODE J4
D8	8-719-991-40	S	DIODE 1N914
D10 to D13	T-9410-657-1	S	DIODE J4
D14 to D19	8-719-991-40	S	DIODE 1N914
D21	T-9410-333-1	S	DIODE
D22	T-9410-333-1	S	DIODE
DS4	8-719-812-42	S	DIODE TLY124
DS5	8-719-812-42	S	DIODE TLY124
DS6	8-719-812-43	S	DIODE TLG124A
DS7	8-719-812-41	S	DIODE TLR124
IC1	8-759-990-72	S	IC TL072CP
IC2	T-9414-285-1	S	HIC L02
IC4	T-9416-048-1	S	IC TL064BCN
IC5 to IC8	8-759-990-72	S	IC TL072CP
IC9	8-759-032-75	S	IC MC74HC02AN
IC10	8-759-179-15	S	IC UPC7915H
IC11	8-759-171-15	S	IC UPC7815H
IC14	8-759-990-72	S	IC TL072CP
IC15	8-759-990-72	S	IC TL072CP
IC101	8-759-990-72	S	IC TL072CP
IC102	T-9414-285-1	S	HIC L02

Ref. No.	Parts No.	SP	Description
JW1	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P
	1-566-385-11	S	PIN, CONNECTOR 2P
JW2	1-566-385-11	S	PIN, CONNECTOR 2P
JW9	1-566-385-11	S	PIN, CONNECTOR 2P
JW11	1-566-385-11	S	PIN, CONNECTOR 2P
JW12	1-566-385-11	S	PIN, CONNECTOR 2P
JW14	1-566-385-11	S	PIN, CONNECTOR 2P
JW15	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P
	1-566-385-11	S	PIN, CONNECTOR 2P
JW16	1-566-385-11	S	PIN, CONNECTOR 2P
JW17 to JW19	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P
	1-566-385-11	S	PIN, CONNECTOR 2P
JW21	1-566-385-11	S	PIN, CONNECTOR 2P
JW22	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P
	1-566-385-11	S	PIN, CONNECTOR 2P
JW23	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P
	1-566-385-11	S	PIN, CONNECTOR 2P
JW24	1-566-385-11	S	PIN, CONNECTOR 2P
JW25	1-566-385-11	S	PIN, CONNECTOR 2P
JW26	1-566-385-11	S	PIN, CONNECTOR 2P
JW27	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P
	1-566-385-11	S	PIN, CONNECTOR 2P
JW101	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P
	1-566-385-11	S	PIN, CONNECTOR 2P
JW102	1-566-385-11	S	PIN, CONNECTOR 2P
JW104	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P
JW105	1-566-385-11	S	PIN, CONNECTOR 2P
JW106	1-566-385-11	S	PIN, CONNECTOR 2P
JW107	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P
JW1008	1-566-385-11	S	PIN, CONNECTOR 2P
JW1009	1-566-385-11	S	PIN, CONNECTOR 2P
K1	1-515-670-11	S	RELAY
K2	1-515-670-11	S	RELAY
Q1	8-729-139-04	S	TRANSISTOR 2N3904
Q2	8-729-113-08	S	TRANSISTOR 2N3906
Q3	8-729-139-04	S	TRANSISTOR 2N3904
Q4	8-729-139-04	S	TRANSISTOR 2N3904
Q5	8-729-113-0S	S	TRANSISTOR 2N3906
Q6 to Q9	8-729-139-04	S	TRANSISTOR 2N3904
R1	1-247-879-51	S	RES, CARBON 100K 5% 1/4W
R2	1-214-583-11	S	RES, METAL 12K 1% 1/8W
R4	1-247-850-11	S	RES, CARBON 6.2K 5% 1/4W
R5	1-247-850-11	S	RES, CARBON 6.2K 5% 1/4W
R6	1-218-208-51	S	RES, METAL 10.5K 1% 1/6W
R7	1-218-208-51	S	RES, METAL 10.5K 1% 1/6W
R8	1-210-828-11	S	RES, CARBON 4.7M 5% 1/4W
R9	1-247-856-51	S	RES, CARBON 11K 5% 1/4W
R10	1-247-859-51	S	RES, CARBON 15K 5% 1/4W
R11	1-247-807-51	S	RES, CARBON 100 5% 1/4W
R12	1-247-879-51	S	RES, CARBON 100K 5% 1/4W
R13	1-247-879-51	S	RES, CARBON 100K 5% 1/4W
R14	1-247-807-51	S	RES, CARBON 100 5% 1/4W
R15	1-247-807-51	S	RES, CARBON 100 5% 1/4W
R16	T-9411-516-1	S	RES, METAL 10K 1% 1/8W
R17	1-247-879-51	S	RES, CARBON 100K 5% 1/4W

Ref. No.	Parts No.	SP	Description			
R28	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R29	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R31	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R32	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R33	1-218-202-51	S	RES, METAL	4.99K	1%	1/6W
R34	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R35	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R36	1-218-198-51	S	RES, METAL	2.55K	1%	1/6W
R37	1-218-198-51	S	RES, METAL	2.55K	1%	1/6W
R38	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R39 to R43	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R44	1-247-831-51	S	RES, CARBON	1K	5%	1/4W
R45	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R46	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R47	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R48	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R49	1-247-792-51	S	RES, CARBON	24	5%	1/4W
R50	1-247-867-51	S	RES, CARBON	33K	5%	1/4W
R52	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R53	1-247-903-51	S	RES, CARBON	1M	5%	1/4W
R54	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R55	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R56	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R57	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R58	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R59	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R61	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R62	1-247-886-51	S	RES, CARBON	200K	5%	1/4W
R63	1-247-867-51	S	RES, CARBON	33K	5%	1/4W
R64	T-9413-637-1	S	RES, METAL	60.4K	1%	1/8W
R65	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R66	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R67	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R68 to R75	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R76 to R79	1-247-854-51	S	RES, CARBON	9.1K	5%	1/4W
R80 to R83	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R84	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R85	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R94	1-249-441-51	S	RES, CARBON	100K	5%	1/4W
R95	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R96	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R97	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R101	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R102	1-214-583-11	S	RES, METAL	12K	1%	1/8W
R104	1-247-850-51	S	RES, CARBON	6.2K	5%	1/4W
R105	1-247-850-51	S	RES, CARBON	6.2K	5%	1/4W
R106	1-218-208-51	S	RES, METAL	10.5K	1%	1/6W
R107	1-218-208-51	S	RES, METAL	10.5K	1%	1/6W
R108	1-210-828-11	S	RES, CARBON	4.7M	5%	1/4W
R109	1-247-856-51	S	RES, CARBON	11K	5%	1/4W
R110	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R111	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R112	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R113	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R114	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R115	1-247-807-51	S	RES, CARBON	100	5%	1/4W

Ref. No.	Parts No.	SP	Description			
R116	T-9411-516-1	S	RES, METAL	10K	1%	1/8W
R128	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R132	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R133	1-218-202-51	S	RES, METAL	4.99K	1%	1/6W
R134	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R135	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R136	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R137	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R138	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R139	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R150	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R151	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R152	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R161	1-218-214-11	S	RES, METAL	22.6K	1%	1/6W
R162	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R163	1-247-886-51	S	RES, CARBON	200K	5%	1/4W
R164	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R165	1-214-583-11	S	RES, METAL	12K	1%	1/8W
R166	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R170	1-247-826-51	S	RES, CARBON	620	5%	1/4W
R171	1-247-826-51	S	RES, CARBON	620	5%	1/4W
R172	1-247-863-51	S	RES, CARBON	22K	5%	1/4W
R173	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R174	T-9411-529-1	S	RES, METAL	100	1%	1/8W
R175	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R176	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R177	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R180	T-9413-659-1	S	JUMPER WIRES			
RV1	T-9413-627-3	S	POTENTIOMETER, MINI 5K/5K			
RV2	T-9413-730-1	S	POTENTIOMETER, MINI 100K/100K			
RV3	T-9413-730-1	S	POTENTIOMETER, MINI 100K/100K			
RV6	T-9413-626-1	S	POTENTIOMETER, MINI 5K/5K			
RV8	T-9413-626-1	S	POTENTIOMETER, MINI 5K/5K			
RV10	T-9413-630-3	S	POTENTIOMETER, MINI 5K/5K			
RV11	T-9413-629-1	S	POTENTIOMETER, MINI 5K/5K			
RV12	1-228-459-11	S	RES, ADJ, CERMET 10K			
RV13	T-9414-190-1	S	DUAL POTENTIOMETER5K/5K			
S1 to S3	1-571-211-11	S	SWITCH, PUSH (3 KEY)			
S4	1-570-200-11	S	SWITCH, PUSH (3 KEY)			
S7	1-571-195-11	S	SWITCH, PUSH (1 KEY)			
S10	1-570-200-11	S	SWITCH, PUSH (3 KEY)			
S11	1-570-200-11	S	SWITCH, PUSH (3 KEY)			
S13	1-571-194-11	S	SWITCH, PUSH (1 KEY)			
S14	1-571-195-11	S	SWITCH, PUSH (1 KEY)			
S15	1-571-195-11	S	SWITCH, PUSH (1 KEY)			
S23	T-9413-495-1	S	SWITCH, ROTARY			
S24	T-9413-495-1	S	SWITCH, ROTARY			
S26	1-571-193-11	S	SWITCH, PUSH (1 KEY)			
T1	T-9413-494-1	S	TRANSFORMER			
T101	T-9413-494-1	S	TRANSFORMER			
W1 to W3	T-9412-014-1	S	FLEXIBLE FLAT CABLE JUMPER 18P			
W4	T-9412-540-1	S	FLEXIBLE FLAT CABLE JUMPERS 9P			

STS BOARD (MXBK-2904,2904E ONLY)

Ref. No.	Parts No.	SP	Description			
–	T-9483-011-1	O	MOUNTED PCB, STS			
(This assembly includes the following parts.)						
–	1-526-652-21	S	SOCKET, IC (DP) 8P			
–	4-922-102-01	S	NUT (KFS2-M3ET), PEM			
C18 to C20	1-124-631-11	S	CAP, ELECT	47	20%	16V
C21	1-162-761-21	S	CAP, CERAMIC	470P	5%	50V
C22	1-162-761-21	S	CAP, CERAMIC	470P	5%	50V
C23	1-124-631-11	S	CAP, ELECT	47	20%	16V
C24	1-130-784-11	S	CAP, FILM	0.39	5%	100V
C25	1-130-779-11	S	CAP, FILM	0.15	5%	100V
C26	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C27	1-124-631-11	S	CAP, ELECT	47	20%	16V
C28	1-124-631-11	S	CAP, ELECT	47	20%	16V
C32	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C33	1-124-631-11	S	CAP, ELECT	47	20%	16V
C34	1-124-631-11	S	CAP, ELECT	47	20%	16V
C35	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C36	1-124-631-11	S	CAP, ELECT	47	20%	16V
C46	1-124-631-11	S	CAP, ELECT	47	20%	16V
C67 to C72	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C112	1-124-631-11	S	CAP, ELECT	47	20%	16V
C118 to C120	1-124-631-11	S	CAP, ELECT	47	20%	16V
C121	1-162-761-21	S	CAP, CERAMIC	470P	5%	50V
C122	1-162-761-21	S	CAP, CERAMIC	470P	5%	50V
C123	1-124-631-11	S	CAP, ELECT	47	20%	16V
C124	1-130-784-11	S	CAP, FILM	0.39	5%	100V
C125	1-130-779-11	S	CAP, FILM	0.15	5%	100V
C126	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C127	1-124-631-11	S	CAP, ELECT	47	20%	16V
C128	1-124-631-11	S	CAP, ELECT	47	20%	16V
C132	1-124-631-11	S	CAP, ELECT	47	20%	16V
C133	1-124-631-11	S	CAP, ELECT	47	20%	16V
C134	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C135	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
CNP10	1-939-543-12	O	HARNESS (LTC)			
DS1	8-719-812-42	S	DIODE TLY124			
DS2	8-719-812-43	S	DIODE TLG124A			
DS3	8-719-812-41	S	DIODE TLR124			
IC3	8-759-990-72	S	IC TL072CP			
IC12	8-759-990-72	S	IC TL072CP			
IC13	8-759-990-72	S	IC TL072CP			
IC103	8-759-990-72	S	IC TL072CP			
JW28	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW29	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW30 to JW33	1-566-385-11	S	PIN, CONNECTOR 2P			
JW34	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW35	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
L1	T-9412-802-1	S	CHOKE COIL 220UH			
L2	T-9412-802-1	S	CHOKE COIL 220UH			
L101	T-9412-802-1	S	CHOKE COIL 220UH			
L102	T-9412-802-1	S	CHOKE COIL 220UH			
R18	1-214-588-11	S	RES, METAL	20K	1%	1/8W
R19	1-218-206-51	S	RES, METAL	6.65K	1%	1/6W
R20	1-247-837-51	S	RES, CARBON	1.8K	5%	1/4W
R21	1-247-837-51	S	RES, CARBON	1.8K	5%	1/4W
R22	1-249-879-51	S	RES, CARBON	100K	5%	1/4W
R23	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R24	1-247-809-51	S	RES, CARBON	120	5%	1/4W
R25	1-247-809-51	S	RES, CARBON	120	5%	1/4W
R26	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R27	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R30	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R86	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R87	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R88	1-215-431-51	S	RES, METAL	2.7K	1%	1/6W
R89	1-247-847-51	S	RES, CARBON	4.7K	5%	1/4W
R90	1-215-431-51	S	RES, METAL	2.7K	1%	1/6W
R91	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R92	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R93	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R118	1-214-588-11	S	RES, METAL	20K	1%	1/8W
R119	1-218-206-51	S	RES, METAL	6.65K	1%	1/6W
R120	1-247-837-51	S	RES, CARBON	1.8K	5%	1/4W
R121	1-247-837-51	S	RES, CARBON	1.8K	5%	1/4W
R122	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R123	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R124	1-247-809-51	S	RES, CARBON	120	5%	1/4W
R125	1-247-809-51	S	RES, CARBON	120	5%	1/4W
R126	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R127	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R129 to R131	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R153	T-9411-791-1	S	RES, METAL	15.8K	1%	1/8W
R154	T-9411-697-1	S	RES, METAL	5.23K	1%	1/8W
R155	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R156	T-9411-791-1	S	RES, METAL	15.8K	1%	1/8W
R157	T-9411-697-1	S	RES, METAL	5.23K	1%	1/8W
R158 to R160	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R168	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R169	T-9411-605-1	S	RES, METAL	604	1%	1/8W
R170	T-9411-605-1	S	RES, METAL	604	1%	1/8W
RV4	T-9413-726-1	S	POTENTIOMETER, MINI 100K/100K			
RV5	T-9413-631-3	S	POTENTIOMETER, MINI 5Kx4			
RV7	T-9412-122-1	S	POTENTIOMETER, MINI 5K/5K			
RV9	T-9413-528-1	S	POTENTIOMETER, MINI 5K/5K			
S5	1-571-193-11	S	SWITCH, PUSH (1 KEY)			
S6	1-571-198-11	S	SWITCH, PUSH (2 KEY)			
S8	1-571-198-11	S	SWITCH, PUSH (2 KEY)			

Ref. No.	Parts No.	SP	Description
S9	1-571-196-11	S	SWITCH, PUSH (1 KEY)
S12	1-571-193-11	S	SWITCH, PUSH (1 KEY)
S16 to S19	1-571-205-11	S	SWITCH, PUSH (4 KEY)
S20 to S22	1-571-200-11	S	SWITCH, PUSH (3 KEY)

TLN BOARD (MXBK-2901,2904,2909 ONLY)
MXBK-LI23

Ref. No.	Parts No.	SP	Description			
-	——	U	COMPLETE PCB, TLN			

(This assembly is available as product, and not as service part.)

Ref. No.	Parts No.	SP	Description			
-	T-9456-420-1	O	LABEL, SERVICE, TLN			
-	1-526-652-21	S	SOCKET, IC (DP) 8P			
C1	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C2	1-124-631-11	S	CAP, ELECT	47	20%	16V
C3	T-9416-104-1	S	CAP, MICA	6800P	1%	100V
C3	T-9416-104-1	S	CAP, MICA	6800P	1%	100V
C5	1-162-806-11	S	CAP, CERAMIC	0.1	10%	50V
C6	1-124-631-11	S	CAP, ELECT	47	20%	16V
C7	1-124-631-11	S	CAP, ELECT	47	20%	16V
C8	T-9411-292-1	S	CAP, CERAMIC	330P	10%	100V
C9	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C10	T-9413-584-1	S	CAP, ELECT	100		6V
C11	T-9413-584-1	S	CAP, ELECT	100		6V
CNP1	1-564-464-21	S	CONNECTOR (LIGHT ANGLE) 15P			
IC1	8-759-900-72	S	IC NE5532P			
R1	T-9411-718-1	S	RES, METAL	7.87K	1%	1/8W
R2	1-247-899-51	S	RES, CARBON	680K	5%	1/4W
R3	1-247-841-51	S	RES, CARBON	2.7K	5%	1/4W
R4	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R5	1-249-879-51	S	RES, CARBON	100K	5%	1/4W
R6	1-218-202-51	S	RES, METAL	4.99K	1%	1/6W
R7	T-9411-697-1	S	RES, METAL	5.23K	1%	1/8W
R8	1-247-799-51	S	RES, CARBON	47	5%	1/4W
R9	1-247-799-51	S	RES, CARBON	47	5%	1/4W
T1	T-9413-575-4	S	TRANSFORMER			

TML BOARD (MXP-2926,2926P ONLY)

Ref. No.	Parts No.	SP	Description
-	T-9483-805-1	O	MOUNTED PCB, TML

(This assembly includes the following parts.)

Ref. No.	Parts No.	SP	Description
-	T-9413-991-1	S	JUMPER WIRES
CNJ1 to CNJ4	1-560-190-11	O	CONNECTOR 20P
CNJ5	1-560-192-11	O	CONNECTOR 50P

Ref. No.	Parts No.	SP	Description
CNJ6	1-560-334-11	O	CONNECTOR 10P
CNJ7 to CNJ15	T-9413-254-1	O	CONNECTOR, EDGE 72P
CNJ17	T-9413-254-1	O	CONNECTOR, EDGE 72P
E1	T-9413-810-1	O	PCB TERMINAL BLOCK, SCREW CLAMP

TMN BOARD (MXBK-2901 ONLY)
MXBK-MI23

Ref. No.	Parts No.	SP	Description			
-	——	U	COMPLETE PCB, TMN			

(This assembly is available as product, and not as service part.)

Ref. No.	Parts No.	SP	Description			
-	T-9456-421-1	O	LABEL, SERVICE, TMN			
-	1-526-652-21	S	SOCKET, IC (DP) 8P			
C1	1-124-631-11	S	CAP, ELECT	47	20%	16V
C2	1-124-631-11	S	CAP, ELECT	47	20%	16V
C3	1-162-806-11	S	CAP, CERAMIC	0.1	10%	50V
C4	T-9411-268-1	S	CAP, CERAMIC	220P	10%	100V
C5	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C6	1-124-631-11	S	CAP, ELECT	47	20%	16V
C7	1-124-631-11	S	CAP, ELECT	47	20%	16V
C8	1-162-745-21	S	CAP, CERAMIC	47P	5%	50V
C9	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C10	T-9413-584-1	S	CAP, ELECT	100		6V
C11	T-9413-584-1	S	CAP, ELECT	100		6V
CNP1	1-564-464-21	S	CONNECTOR (LIGHT ANGLE) 15P			
IC1	8-759-905-34	S	IC NE5534AN			
R1	1-247-871-51	S	RES, CARBON	47K	5%	1/4W
R2	1-247-851-51	S	RES, CARBON	47K	5%	1/4W
R3	1-247-876-51	S	RES, CARBON	75K	5%	1/4W
R4	1-247-885-51	S	RES, CARBON	180K	5%	1/4W
R5	1-247-826-51	S	RES, CARBON	620	5%	1/4W
R6	T-9411-536-1	S	RES, METAL	118	1%	1/8W
R7	1-247-789-51	S	RES, CARBON	18	5%	1/4W
R8	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R9	T-9411-682-1	S	RES, METAL	3.57K	1%	1/8W
R10	T-9411-601-1	S	RES, METAL	536	1%	1/8W
R11	T-9411-601-1	S	RES, METAL	536	1%	1/8W
R12	1-247-799-51	S	RES, CARBON	47	5%	1/4W
R13	1-247-799-51	S	RES, CARBON	47	5%	1/4W
T1	T-9413-575-4	S	TRANSFORMER			

TVM BOARD (MXBK-2906 ONLY)

Ref. No.	Parts No.	SP	Description
-	T-9486-037-A	O	MOUNTED PCB, TVM

(This assembly inlcludes the following parts.)

Ref. No.	Parts No.	SP	Description
-	T-9456-426-1	O	LABEL, SERVICE, TVM
-	1-526-652-21	S	SOCKET, IC (DP) 8P

Ref. No.	Parts No.	SP	Description			
–	1-526-654-21	S	SOCKET, IC (DP) 16P			
–	1-526-656-21	S	SOCKET, IC (DP) 20P			
–	4-922-102-01	S	NUT (KF52-M3ET), PEM			
C2	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C3	1-124-631-11	S	CAP, ELECT	47	20%	16V
C5	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C6 to C16	1-124-631-11	S	CAP, ELECT	47	20%	16V
C17	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C18	1-124-631-11	S	CAP, ELECT	47	20%	16V
C19	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C20	1-124-631-11	S	CAP, ELECT	47	20%	16V
C21	1-162-741-21	S	CAP, CERAMIC 22P	5%	50V	
C22	1-124-631-11	S	CAP, ELECT	47	20%	16V
C23	1-162-741-21	S	CAP, CERAMIC 22P	5%	50V	
C24	1-124-014-11	S	CAP, ELECT	220	20%	16V
C25	1-124-014-11	8	CAP, ELECT	220	20%	16V
C26 to C31	1-124-631-11	S	CAP, ELECT	47	20%	16V
C32	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C33	1-124-631-11	S	CAP, ELECT	47	20%	16V
C34	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C35	1-124-631-11	S	CAP, ELECT	47	20%	16V
C36	1-124-631-11	S	CAP, ELECT	47	20%	16V
C37	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C38 to C43	1-124-631-11	S	CAP, ELECT	47	20%	16V
C44	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C45	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C46	1-124-631-11	S	CAP, ELECT	47	20%	16V
C47	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C48	1-123-621-11	S	CAP, ELECT	10	20%	25V
C49	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C50 to C53	1-124-014-11	S	CAP, ELECT	220	20%	16V
C54 to C57	1-123-621-11	S	CAP, ELECT	10	20%	25V
C58	1-162-741-21	S	CAP, CERAMIC	22P	5%	50V
C59 to C61	1-124-631-11	S	CAP, ELECT	47	20%	16V
C62 to C77	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C118 to C123	1-124-631-11	S	CAP, ELECT	47	20%	16V
C125	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C126	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C131	1-162-798-21	S	CAP, CERAMIC	0.022	10%	50V
C132	1-162-798-21	S	CAP, CERAMIC	0.022	10%	50V
CNJ3	1-564-490-11	S	PIN, CONNECTOR 10P			
CNJ4	1-564-492-11	S	PIN, CONNECTOR 20P			
D2 to D7	8-719-991-40	S	DIODL 1N914			
D8 to D11	T-9410-657-1	S	DIODE J4			
D12 to D16	8-719-991-40	S	DIODE 1N914			

Ref. No.	Parts No.	SP	Description			
IC1	8-759-900-72	S	NE5532P			
IC2	T-9414-258-1	S	HIC L02			
IC3	T-9414-258-1	S	HIC L02			
IC4	8-759-990-72	S	TL072CP			
IC5	8-759-603-37	S	M5216P			
IC6 to IC10	8-759-990-72	S	TL072CP			
IC11	8-759-171-15	S	IC UPC7815			
IC12	8-759-179-15	S	IC UPC7915			
IC21	8-759-990-72	S	TL072CP			
IC22	8-759-937-39	S	DG211CJ			
IC23	8-759-937-39	S	DG211CJ			
J1	T-9413-568-1	S	JACK PHONE RT ANG			
JW11	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW12	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW13	1-566-385-11	S	PIN, CONNECTOR 2P			
JW14	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW15	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-385-11	S	PIN, CONNECTOR 2P			
JW16	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-388-11	S	PIN, CONNECTOR 8P			
JW17	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-388-11	S	PIN, CONNECTOR 8P			
JW18	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-388-11	S	PIN, CONNECTOR 8P			
JW19	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-388-11	S	PIN, CONNECTOR 8P			
JW20	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-388-11	S	PIN, CONNECTOR 8P			
JW21	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-388-11	S	PIN, CONNECTOR 8P			
JW22	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-388-11	S	PIN, CONNECTOR 8P			
JW23	1-566-388-11	S	PIN, CONNECTOR 8P			
JW24	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
	1-566-388-11	S	PIN, CONNECTOR 8P			
K2 to K4	1-515-671-11	S	RELAY			
Q1 to Q9	8-729-139-04	S	TRANSISTOR 2N3904			
Q10	8-729-905-68	S	TRANSISTOR J111			
Q11 to Q14	8-729-139-04	S	TRANSISTOR 2N3904			
Q23	8-729-139-04	S	TRANSISTOR 2N3904			
R1	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R2	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R3 to R5	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R6	1-218-212-51	S	RES, METAL	19.1K	1%	1/6W
R7	T-9412-633-1	S	RES, CARBON	100	5%	1W
R8	T-9412-633-1	S	RES, CARBON	100	5%	1W
R9 to R12	1-247-879-51	S	RES, CARBON	100K	5%	1/4W

Ref. No.	Parts No.	SP	Description			
R13	1-247-838-51	S	RES, CARBON	2K	5%	1/4W
R14	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R15	1-218-212-51	S	RES, METAL	19.1K	1%	1/6W
R17 to R20	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R21	1-247-838-51	S	RES, CARBON	2K	5%	1/4W
R23	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R24	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R25	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R26	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R27	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R28	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R29	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R30 to R37	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R38	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R39	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R40	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R41	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R42	1-247-831-51	S	RES, CARBON	1K	5%	1/4W
R43	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R44	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R45	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R46	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R47	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R48	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R49	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R50	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R51 to R54	1-247-843-51	S	RES, CARBON	3.3K	5%	1/4W
R55	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R56	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R57 to R59	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R60	1-218-202-11	S	RES, METAL	4.99K	1%	1/6W
R61	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R62	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R63	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R64 to R70	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R71 to R74	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R75	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R76	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R77	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R78 to R83	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R84	1-210-825-11	S	RES, CARBON	3.3M	5%	1/4W
R85	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R86	1-247-866-51	S	RES, CARBON	30K	5%	1/4W
R87	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R88	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R89	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R90	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R91	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R92	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R93	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R94 to R96	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R98 to R100	1-247-831-51	S	RES, CARBON	1K	5%	1/4W

Ref. No.	Parts No.	SP	Description			
R164 to R167	1-247-807-51	S	RES, CARBON	100	5%	1/4W
R168 to R171	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R172 to R175	1-214-592-11	S	RES, METAL	30K	1%	1/8W
R176 to R179	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R180	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R181	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R182 to R184	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R194	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R195	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R196	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R200	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
R201 to R206	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R207	1-247-860-51	S	RES, CARBON	16R	5%	1/4W
R208	1-247-860-51	S	RES, CARBON	16R	5%	1/4W
R210	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R211	1-247-859-51	S	RES, CARBON	15K	5%	1/4W
R212	1-247-855-51	S	RES, CARBON	10K	5%	1/4W
RN1	T-9412-087-1	S	RES, NET SIP 10K			
RV1 to RV3	T-9413-529-1	S	POTENTIOMETER, MINI 5K/5K			
RV4	1-226-698-11	S	RES, ADJ, CERMET 10K			
S1 to S10	1-571-210-11	S	SWITCH, PUSH (10 KEY)			
S17 to S20	1-571-203-11	S	SWITCH, PUSH (4 REY)			
S21 to S23	1-571-201-11	S	SWITCH, PUSH (3 KEY)			
W1	1-560-315-11	O	POST HEADER (IL CONNECTOR) 12P			
W2	T-9413-618-1	S	FLEXIBLE FLAT CABLE JUMPERS 8P			

VCA BOARD (MXBK-2901,2901E,2902,2904,2904E,2908,2909, 2909E ONLY)

-	A-4410-559-B	O	COMPLETE PCB, VCA			

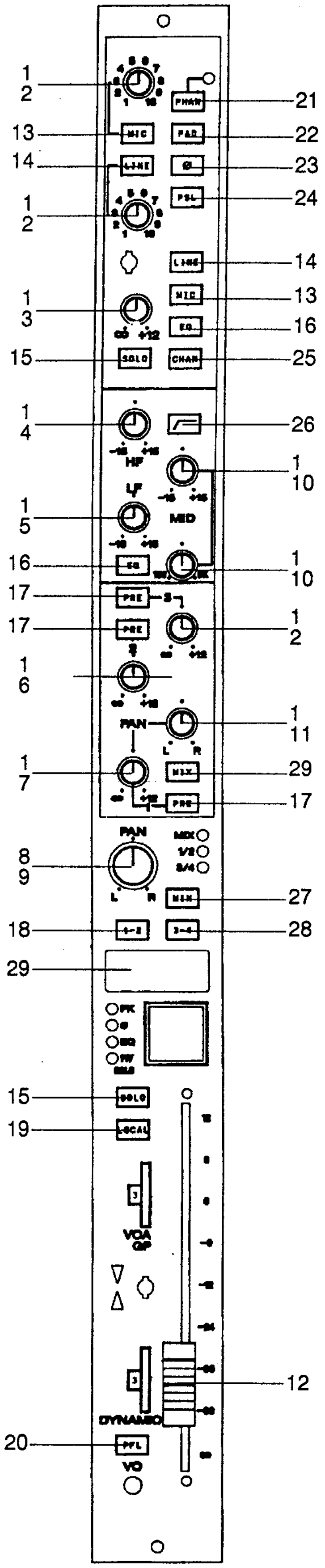
(This assembly include the following parts.)

-	T-9456-418-1	O	LABEL, SERVICE, VCA			
-	1-526-652-21	S	SOCKET, IC (DP) 8P			
-	1-526 653-21	S	SOCKET, IC (DP) 14P			
-	1-565-413-11	O	RECEPTACLE, CONNECTOR 2P			
C1	1-124-631-11	S	CAP, ELECT	47	20%	16V
C2	1-124-474-11	S	CAP, ELECT	47	20%	16V
C3	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C4	1-124-474-11	S	CAP, ELECT	47	20%	16V
C5	T-9413-735-1	S	CAP, ELECT	1000	20%	6V
C6	1-162-743-21	S	CAP, CERAMIC	33P	5%	50V

Ref. No.	Parts No.	SP	Description			
C7	T-9411-327-1	S	CAP, CERAMIC	47000P	20%	100V
C8	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
C9	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C10	1-162-753-21	S	CAP, CERAMIC	100P	5%	50V
C11	1-162-787-21	S	CAP, CERAMIC	2700P	10%	50V
C12	1-161-794-21	S	CAP, CERAMIC	0.01	10%	50V
C13 to C16	1-162-806-21	S	CAP, CERAMIC	0.1	10%	50V
CNP1	1-564-464-21	S	CONNECTOR (LIGHT ANGLE) 15P			
D1	8-719-110-62	S	DIODE RD11EB3			
D2 to D5	8-719-911-19	S	DIODE 1SS119			
D6	8-719-100-30	S	DIODE RD5.1EB2			
D7	8-719-100-30	S	DIODE RD5.1EB2			
IC1	T-9412-317-1	S	IC DBX2151			
IC2	T-9416-048-1	S	IC TL064BCN			
IC3	8-759-900-72	S	IC NE5532P			
JW1	1-566-385-11	S	PIN, CONNECTOR 2P			
JW2	1-566-385-11	S	PIN, CONNECTOR 2P			
R1	1-218-195-51	S	RES, METAL	1.82K	1%	1/6W
R2	1-218-195-51	S	RES, METAL	1.82K	1%	1/6W
R3	1-244-879-51	S	RES, CARBON	100K	5%	1/4W
R4	1-214-588-11	S	RES METAL	20K	1%	1/8W
R5	1-214-588-11	S	RES METAL	20K	1%	1/8W
R6	1-247-879-51	S	RES, CARBON	100K	5%	1/4W
R7	1-214-569-11	S	RES, METAL	3.3K	1%	1/8W
R8	1-214-526-11	S	RES, METAL	51	1%	1/8W
R11	1-215-830-11	S	RES, METAL	100K	1%	1/8W

Ref. No.	Parts No.	SP	Description			
R12	1-218-260-51	S	RES, METAL	105K	1%	1/6W
R13	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R14	1-215-476-11	S	RES, METAL	200K	1%	1/6W
R15	1-215-830-11	S	RES, METAL	100K	1%	1/8W
R16	1-218-222-51	S	RES, METAL	49.9K	1%	1/6W
R17	1-218-222-51	S	RES, METAL	49.9K	1%	1/6W
R18	1-218-211-51	S	RES, METAL	14.7K	1%	1/6W
R19	1-214-557-11	S	RES, METAL	1K	1%	1/8W
R20	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R21	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R22	1-247-852-51	S	RES, CARBON	7.5K	5%	1/4W
R23 to R25	1-214-581-11	S	RES, METAL	10K	1%	1/8W
R26	1-218-230-51	S	RES, METAL	221K	1%	1/6W
R27	1-214-564-11	S	RES, METAL	2K	1%	1/8W
R28	1-214-564-11	S	RES, METAL	2K	1%	1/8W
R29	1-218-261-51	S	RES, METAL	143K	1%	1/6W
R30	1-218-226-51	S	RES, METAL	95.3K	1%	1/6W
R31	T-9411-520-1	S	RES, METAL	80.6	1%	1/8W
R32	T-9411-520-1	S	RES, METAL	80.6	1%	1/8W
R33	1-247-887-51	S	RES, CARBON	220K	5%	1/4W
R34	1-214-579-11	S	RES, METAL	8.2K	1%	1/8W
R35	1-214-557-11	S	RES, METAL	1K	1%	1/8W
R36	1-247-894-51	S	RES, CARBON	430K	5%	1/4W
R37	1-247-862-51	S	RES, CARBON	20K	5%	1/4W
R38	1-247-862-51	S	RES, CARBON	20K	5%	1/4W
R41	1-218-218-51	S	RES, METAL	31.6K	1%	1/6W
R42	1-214-588-11	S	RES, METAL	20K	1%	1/8W
RV1	1-228-908-11	S	RES, ADJ, CERMET 50K			
RV2	1-226-369-11	S	RES, ADJ, CERMET 5K			
RV3	1-228-460-11	S	RES, ADJ, CERMET 20K			
RV4	1-228-462-11	S	RES, ADJ, CERMET 100K			

MXBK-2901/2901E
INPUT MODULE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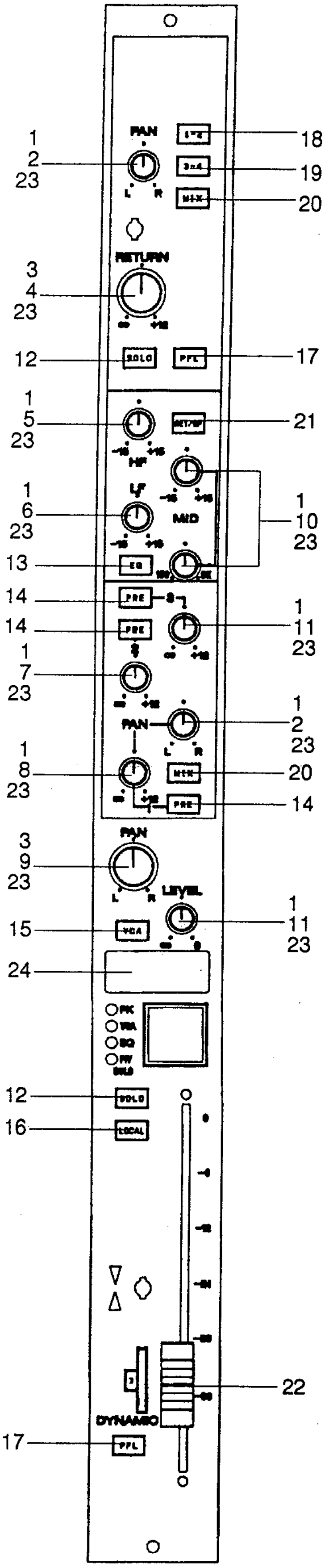
HF
LF
MID
EQ
PRE
PRE
PAN
MIX
PRE
PAN
MIX
1/2
3/4
1-2
3-4
SOLO
LOCAL
VCA
GP
DYNAMIC
PFL
VO

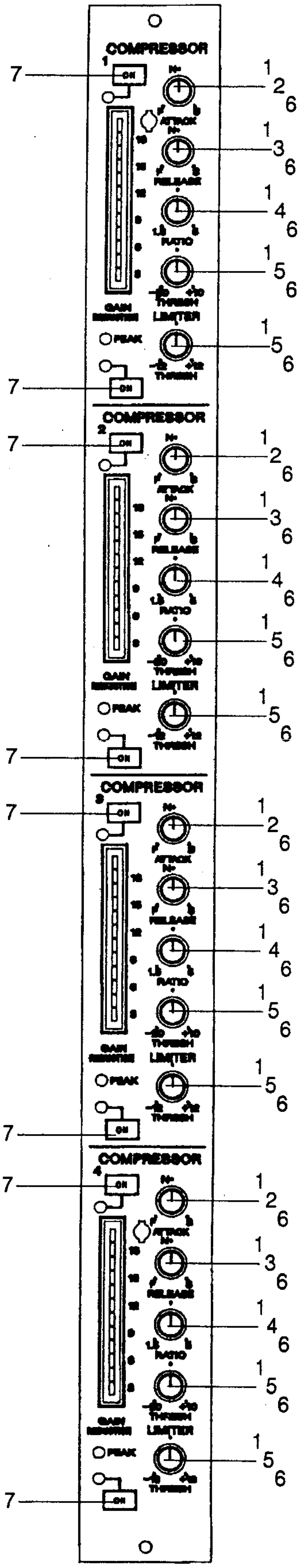
ITEM	PART #	DESCRIPTION
1	T-9452-463-1	10MM KNOB 1/8 SHAFT
2	T-9451-701-1	CAP 10MM, GRAY
3	T-9451-700-1	CAP 10MM, BLACK
4	T-9451-697-1	CAP 10MM, WHITE
5	T-9451-702-1	CAP 10MM, ORANGE
6	T-9451-694-1	CAP 10MM, BLU
7	T-9451-696-1	CAP 10MM, GRN
8	T-9452-887-1	15MM KNOB 1/8 SHAFT
9	T-9451-698-1	CAP 15MM, GRAY
10	T-9451-679-1	CAP 10MM, YELLOW
11	T-9451-835-1	CAP 10MM, RED
12	T-9452-890-1	KNOB, FADER, WHITE
13	T-9452-514-1	BUTT, DR GRY (MIC)
14	T-9452-415-1	BUTT, DR GRY (LINE)
15	T-9452-459-1	BUTT, DR GRY (SOLO)
16	T-9452-439-1	BUTT, DR GRY (EQ)
17	T-9452-420-1	BUTT, DR GRY (PRE)
18	T-9452-434-1	BUTT, DR GRY (1-2)
19	T-9456-065-1	BUTT, DR GRY (LOCAL)
20	T-9452-460-1	BUTT, DR GRY (PFL)
21	T-9452-438-1	BUTT, DR GRY (PHAN)
22	T-9452-440-1	BUTT, DR GRY (PAD)
23	T-9452-416-1	BUTT, DR GRY (ø)
24	T-9452-513-1	BUTT, DR GRY (PSL)
25	T-9452-419-1	BUTT, DR GRY (CHAN)
26	T-9452-417-1	BUTT, DR GRY (⌐)
27	T-9452-433-1	BUTT, DR GRY (MIX)
28	T-9452-435-1	BUTT, DR GRY (3-4)
29	T-9456-109-2	WRITING PLATE

MXBK-2902
GROUP MODULE


PAN
L
R
1-2
3-4
MIX
RETURN
SOLO
PFL
RET/GP
HF
LF
MID
EQ
PRE
LEVEL
VCA
LOCAL
DYNAMIC
1
2
23
3
4
23
12
1
5
23
1
6
23
13
14
14
1
7
23
1
8
23
3
9
23
15
24
12
16
17
18
19
20
17
21
1
10
23
1
11
23
1
2
23
20
14
1
11
23
22

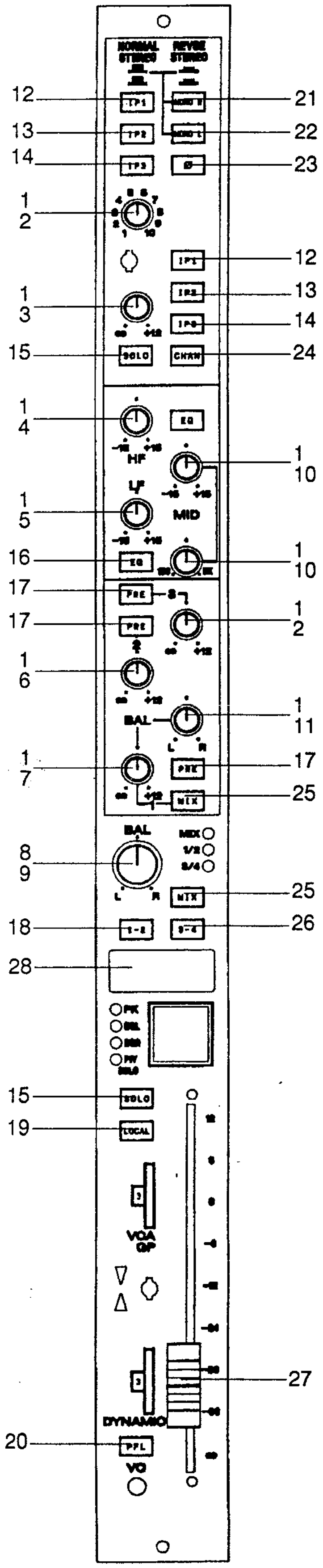
ITEM	PART #	DESCRIPTION
1	T-9452-463-1	10MM KNOB 1/8 SHAFT
2	T-9451-835-1	CAP 10MM, RED
3	T-9452-887-1	15MM KNOB 1/8 SHAFT
4	T-9451-698-1	CAP 15MM, GRAY
5	T-9451-697-1	CAP 10MM, WHITE
6	T-9451-702-1	CAP 10MM, ORANGE
7	T-9451-694-1	CAP 10MM, BLU
8	T-9451-696-1	CAP 10MM, GRN
9	T-9453-138-1	CAP 15MM, GRAY
10	T-9451-695-1	CAP 10MM, YELLOW
11	T-9451-701-1	CAP 10MM, GRAY
12	T-9452-459-1	BUTT, DR GRY (SOLO)
13	T-9452-439-1	BUTT, DR GRY (EQ)
14	T-9452-420-1	BUTT, DR GRY (PRE)
15	T-9453-181-1	BUTT, DR GRY (VCA)
16	T-9456-065-1	BUTT, DR GRY (LOCAL)
17	T-9452-460-1	BUTT, DR GRY (PFL)
18	T-9452-434-1	BUTT, DR GRY (1-2)
19	T-9452-435-1	BUTT, DR GRY (3-4)
20	T-9452-433-1	BUTT, DR GRY (MIX)
21	T-9452-515-1	BUTT, DR GRY (RET/GP)
22	T-9452-891-1	KNOB, FADER, BLUE
23	7-623-924-11	NYLON WASHER, 3.0
24	T-9456-109-2	WRITING PLATE

MXBK-2903
DYNAMIC MODULE


COMPRESSOR
1
2
3
4
ON
ATTACK
RELEASE
RATIO
THRESH
LIMITER
PEAK
GAIN REDUCTION
7
1
2
3
4
5
6

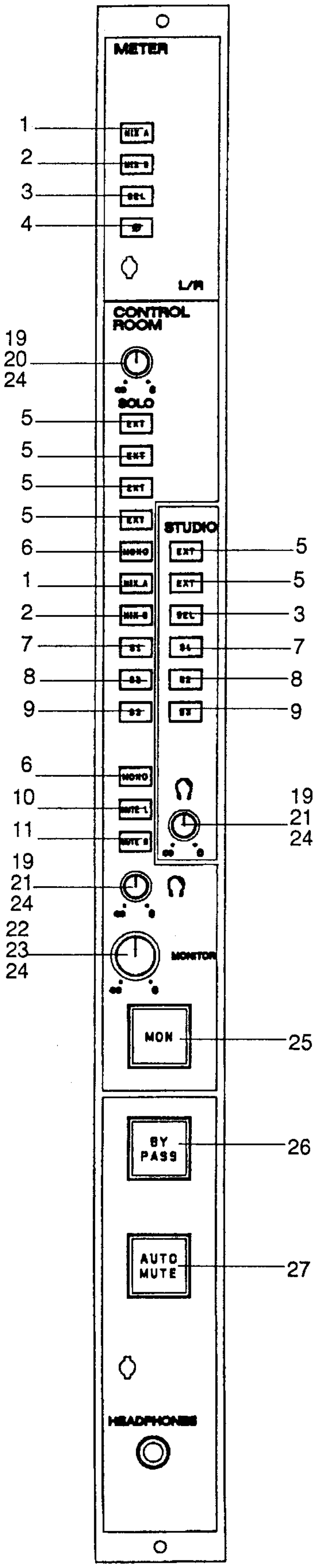
ITEM	PART #	DESCRIPTION
1	T-9452-463-1	10MM KNOB 1/8 SHAFT
2	T-9451-697-1	CAP 10MM, WHITE
3	T-9451-694-1	CAP 10MM, BLU
4	T-9451-679-1	CAP 10MM, YELLOW
5	T-9451-835-1	CAP 10MM, RED
6	7-623-924-11	NYLON WASHER, 3.0
7	T-9452-522-1	BUTT, DR GRY (ON)

MXBK-2904/2904E
STEREO LINE
INPUT MODULE


12
13
14
1
2
1
3
15
1
4
1
5
16
17
17
1
6
1
7
8
9
18
28
15
19
20
21
22
23
12
13
14
24
1
10
1
10
1
2
1
11
17
25
25
26
27
NORMAL STEREO
REVSE STEREO
SOLO
CHAN
EQ
HF
MID
EQ
PRE
PRE
BAL
PRE
MIX
BAL
MIX
SOLO
LOCAL
VCA GP
DYNAMIC
PFL
VO

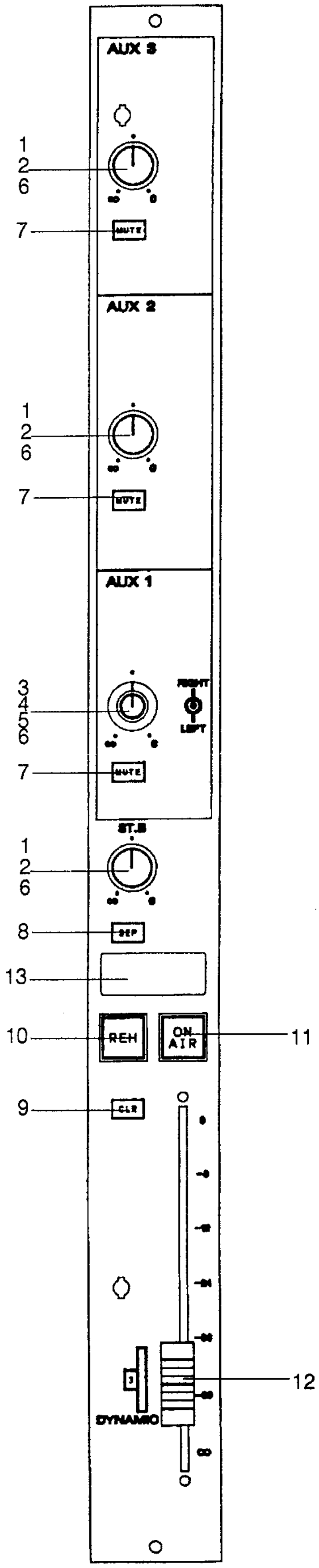
ITEM	PART #	DESCRIPTION
1	T-9452-463-1	10MM KNOB 1/8 SHAFT
2	T-9451-701-1	CAP 10MM, GRAY
3	T-9451-700-1	CAP 10MM, BLACK
4	T-9451-697-1	CAP 10MM, WHITE
5	T-9451-702-1	CAP 10MM, ORANGE
6	T-9451-694-1	CAP 10MM, BLU
7	T-9451-696-1	CAP 10MM, GRN
8	T-9452-887-1	15MM KNOB 1/8 SHAFT
9	T-9451-698-1	CAP 15MM, GRAY
10	T-9451-679-1	CAP 10MM, YELLOW
11	T-9451-835-1	CAP 10MM, RED
12	T-9453-461-1	BUTT, DR GRY (IP1)
13	T-9453-462-1	BUTT, DR GRY (IP2)
14	T-9452-463-1	BUTT, DR GRY (IP3)
15	T-9452-459-1	BUTT, DR GRY (SOLO)
16	T-9452-439-1	BUTT, DR GRY (EQ)
17	T-9452-420-1	BUTT, DR GRY (PRE)
18	T-9452-434-1	BUTT, DR GRY (1-2)
19	T-9456-065-1	BUTT, DR GRY (LOCAL)
20	T-9452-460-1	BUTT, DR GRY (PFL)
21	T-9453-464-1	BUTT, DR GRY (MONO L)
22	T-9453-465-1	BUTT, DR GRY (MONO R)
23	T-9452-416-1	BUTT, DR GRY (ø)
24	T-9452-419-1	BUTT, DR GRY (CHAN)
25	T-9452-433-1	BUTT, DR GRY (MIX)
26	T-9452-435-1	BUTT, DR GRY (3-4)
27	T-9452-890-1	KNOB, FADER, WHITE
28	T-9456-109-2	WRITING PLATE

MXBK-2906
MONITOR MODULE


METER
1
2
3
4
MIX A
MIX B
SEL
L/R
CONTROL ROOM
19
20
24
SOLO
5
5
5
5
EXT
6
MONO
1
2
7
8
9
STUDIO
5
5
3
7
8
9
6
10
11
MUTE L
MUTE R
19
21
24
19
21
24
22
23
24
MONITOR
MON
25
BY PASS
26
AUTO MUTE
27
HEADPHONES

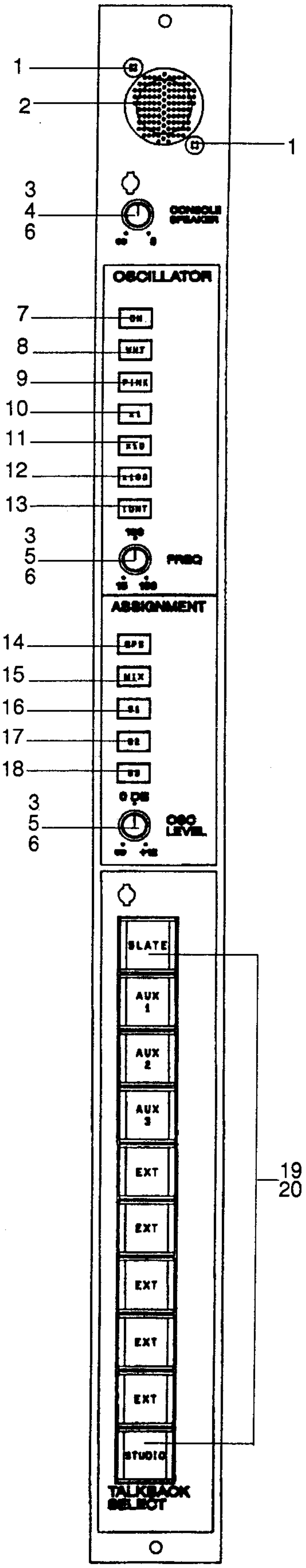
ITEM	PART #	DESCRIPTION
1	T-9452-524-1	BUTT, DR GRY (MIX A)
2	T-9452-525-1	BUTT, DR GRY (MIX B)
3	T-9452-526-1	BUTT, DR GRY (SEL)
4	T-9452-416-1	BUTT, DR GRY (ø)
5	T-9452-527-1	BUTT, DR GRY (EXT)
6	T-9452-528-1	BUTT, DR GRY (MONO)
7	T-9452-519-1	BUTT, DR GRY (S1)
8	T-9452-520-1	BUTT, DR GRY (S2)
9	T-9452-521-1	BUTT, DR GRY (S3)
10	T-9452-529-1	BUTT, DR GRY (MUTE L)
11	T-9452-530-1	BUTT, DR GRY (MUTE R)
18	T-9452-521-1	BUTT, DR GRY (S3)
19	T-9452-463-1	10MM KNOB 1/8 SHAFT
20	T-9453-701-1	CAP 10MM GRAY
21	T-9451-694-1	CAP 10MM, BLU
22	T-9452-887-1	15MM KNOB 1/8 SHAFT
23	T-9453-138-1	CAP 15MM, GRAY
24	7-623-924-11	NYLON WASHER, 3.0
25	1-939-474-11	HARNESS (SWITCH & FADER)
	T-9453-167-1	KEY CAP, ENGRAVED, MON
26	1-939-474-11	HARNESS (SWITCH & FADER)
	T-9453-168-1	KEY CAP, ENGRAVED, BY PASS
27	1-939-474-11	HARNESS (SWITCH & FADER)
	T-9453-169-1	KEY CAP, ENGRAVED, AUTO MUTE

MXBK-2908
MASTER MODULE


AUX 3
1
2
6
7
MUTE
AUX 2
1
2
6
7
MUTE
AUX 1
3
4
5
6
RIGHT
LEFT
7
MUTE
ST.B
1
2
6
8
SEP
13
10
REH
ON AIR
11
9
CLR
DYNAMIC
12

ITEM	PART #	DESCRIPTION
1	T-9452-887-1	15MM KNOB 1/8 SHAFT
2	T-9453-138-1	CAP 15MM, GRAY
3	T-9453-258-1	15MM NOB 1/8 SHAFT
4	T-9453-257-1	11MM NOB 2MM SHAFT
5	T-9453-182-1	CAP 11MM, GREEN
6	7-623-924-11	NYLON WASHER, 3.0
7	T-9452-424-1	BUTT, DK GRY (MUTE)
8	T-9452-516-1	BUTT, GRY (SEL)
9	T-9452-523-1	BUTT, DK GRY (CLR)
10	A-4459-024-A	SWITCH ASSY, REH
	T-9413-688-1	LED 12MM GREEN
	T-9453-175-1	KEY CAP, ENGRAVED. REH
11	A-4459-023-A	SWITCH ASSY, ON AIR
	T-9413-687-1	LED 12MM RED
	T-9453-170-1	KEY CAP, ENGRAVED. ON AIR
12	T-9452-889-1	KNOB, FADER, RED
13	T-9456-109-2	WRITING PLATE

MXBK-2917 COMMUNICATIONS MODULE


1
2
1
3
4
6
CONSOLE SPEAKER
OSCILLATOR
7
ON
8
WHT
9
PINK
10
x1
11
x10
12
x100
13
IDNT
3
5
6
FREQ
ASSIGNMENT
14
GPS
15
MIX
16
S1
17
S2
18
S3
0 DB
3
5
6
OSC LEVEL
SLATE
AUX 1
AUX 2
AUX 3
EXT
EXT
EXT
EXT
EXT
STUDIO
19
20
TALKBACK SELECT

ITEM	PART #	DESCRIPTION
1	T-9453-301-1	SCREW, BT HD 6-32X1/4
2	4-922-114-01	GRILLE (COMMUNICATIONS)
	4-922-112-01	BUSHING (MICROPHONE)
	T-9453-300-1	SCREW, BH 2-56X3/16
	4-922-113-02	BRACKET (MICROPHONE)
	T-9410-234-1	MICROPHONE CARTRIDGE
3	T-9452-463-1	10MM KNOB 1/8 SHAFT
4	T-9453-117-1	CAP 10MM DK GRY
5	T-9451-835-1	CAP 10MM, RED
6	7-623-924-11	NYLON WASHER, 3.0
7	T-9452-522-1	BUTT, DR GRY (ON)
8	T-9452-429-1	BUTT, DR GRY (WHT)
9	T-9452-430-1	BUTT, DR GRY (PINK)
10	T-9452-426-1	BUTT, DR GRY (x1)
11	T-9456-427-1	BUTT, DR GRY (x10)
12	T-9452-428-1	BUTT, DR GRY (x100)
13	T-9452-518-1	BUTT, DR GRY (IDNT)
14	T-9452-517-1	BUTT, DR GRY (GPS)
15	T-9452-433-1	BUTT, DR GRY (MIX)
16	T-9452-519-1	BUTT, DR GRY (S1)
17	T-9452-520-1	BUTT, DR GRY (S2)
18	T-9452-521-1	BUTT, DR GRY (S3)
19	T-9453-299-1	CAP SW WHT W/CLR LENS
20	T-9453-504-1	PROD COM LABELS

APPENDIX A

MONITOR MODULE RETROFIT FOR EDITING

REFER TO TABLE 7-7

MONITOR MODULE MAIN BOARD (MON)
HARDWIRE AS REQUIRED

T-9414-004-1, T-9414-004-2

JW22	IC24-6 to W2-3
** JW24	IC24-7 to IC24-10

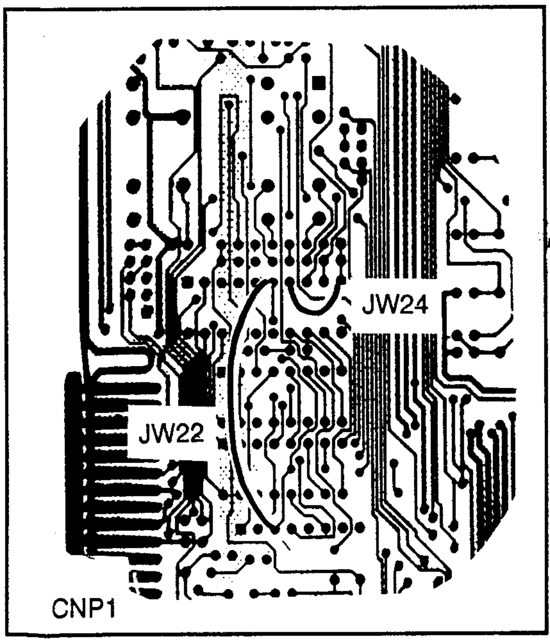
T-9414-004-3

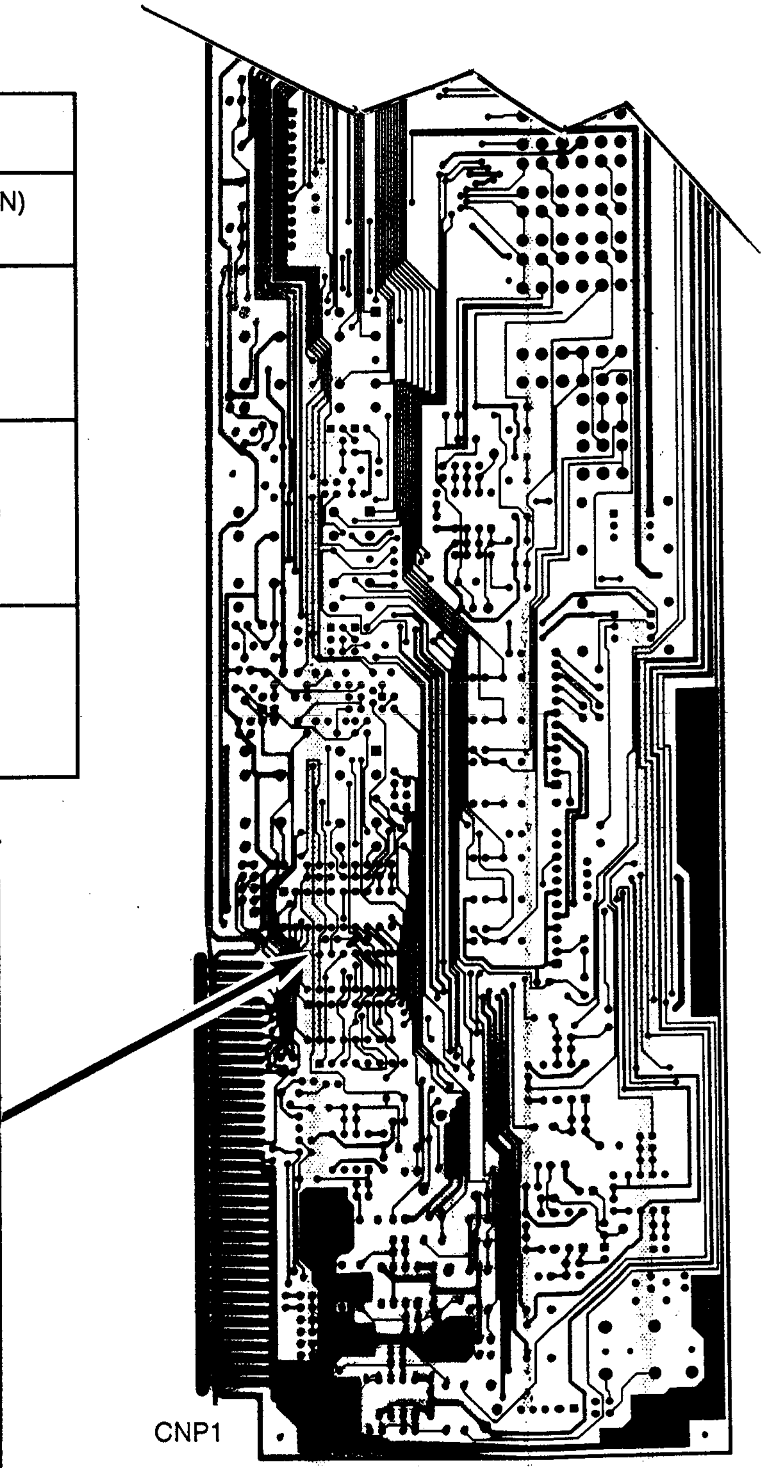
JW22	jumper block, hardwire not required
** JW24	IC24-7 to IC24-10

T-9414-004-4 and up

JW22, JW24 jumper blocks,
hardwire not required

** For Free Recorder Assignment and
4-channel Fixed Recorder Assignment only.





MONITOR MODULE MAIN BOARD (MON)
T-9414-004-1, -2, -3, -4
(SOLDER SIDE, PARTIAL VIEW)

APPENDIX B

EDITORS PROGRAM NOTES AND SWITCH/JUMPER SETTINGS

CONTENTS

Page

BVE-900/910 Program Notes .... APP B-2
BKE-908 Jumper Settings .... APP B-2
BKE-916 Switch and Jumper Settings .... APP B-3
BKE-916A Switch and Jumper Settings .... APP B-4
BVE-9000 Program Notes for Editors with Software Prior to Version V.2.21 .... APP B-5
BVE-9000 Program Notes for Editors with Software Version V.2.21 .... APP B-7
BKE-9600 Orientation and Switch Settings .... APP B-12
BKE-9632 Switch and Jumper Settings .... APP B-13
  Serial NO. 10001 to 11400 .... APP B-13
  Serial NO. 11401 and up .... APP B-13

BVE-900/BVE-910 PROGRAM NOTES

When [Shift] is displayed next to a key name - hold down the SHIFT key while pressing the named key.

1. Install **BKE-916(A)** mixer interface board in slot #6 of the **BVE-900/910**. Ensure that mixer firmware version number displayed in the INIT MENU upper right corner (x.xx M)

Slots are counted from left to right looking at the rear of the editor with the extension board being in slot 0.

2. Set **BVE-900** mixer crosspoints under MIXER BLOCK in the SETUP MENU - [SHIFT] 0, [SHIFT] REC, F5. Set BVE-910 mixer crosspoints in INIT #4 menu. [SHIFT] 0, [SHIFT] 7 (BS) then F3 MIXER CROSSPOINT. Remember crosspoints are counted based on machines not on modules. This means that if an audio console has a 2-channel playback machine input into modules (faders) 1 and 2, the combination is counted as crosspoint #1. There can be only one crosspoint for each machine. The EXT MON crosspoint is designated as O so be sure to set the recorder's crosspoint to 00 for fixed assignment modes.

3. Set the MIXER CONTROL MODE so the VCA lines (crosspoints) will be controlled.

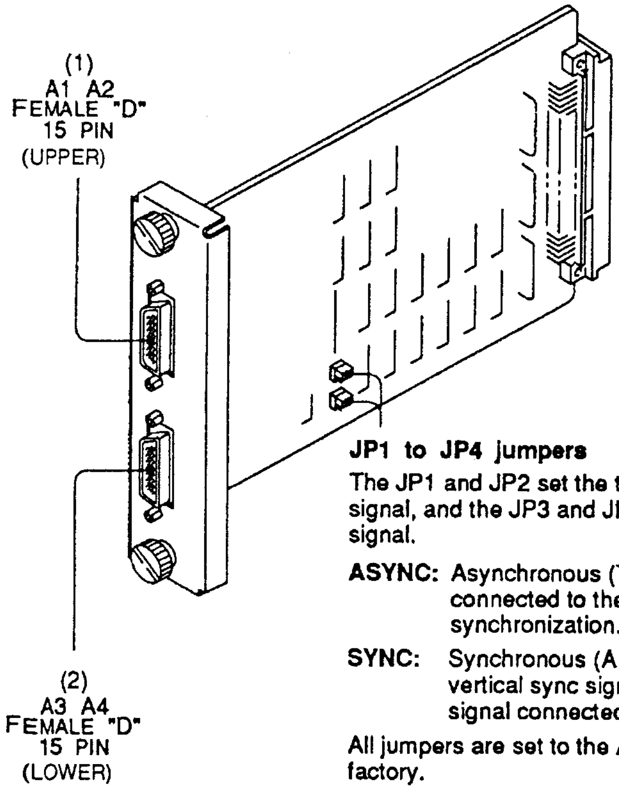
BVE-900:

1. [SHIFT] O (INIT)
2. [SHIFT] REC (SETUP)
3. Fl (MAIN BLOCK)
4. F4 (INTERFACE)
5. Set BYTE 1 to 00000001 (EE)
6. [SHIFT] ENTER (RETURN) - 4 TIMES

BVE-910, BVE-9OOK:

1. [SHIFT] O (INIT)
2. [SHIFT] REC (SETUP)
3. [SHIFT] Fl (F5-SWITCHER/MIXER)
4. F2-MIXER CONFIGURATION
5. Fl-MON MODE LINE, MON, BOTH (MIX) or BOTH (PARA)
6. Enter
7. Set PVW MODE to EE, MON OR FULL (MIX)
8. [SHIFT] ENTER (RETURN)
9. F3-MON SW'ER CONFRIGURATION
10. Fl-EFFECT CROSSPOINT ASSIGN = 01
11. [SHIFT] ENTER (RETURN) - 4 TIMES

BKE-908 JUMPER SETTINGS



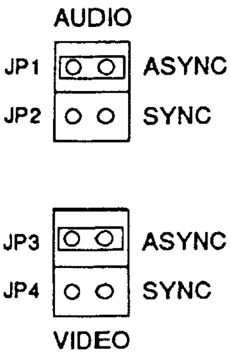
JP1 to JP4 jumpers

The JP1 and JP2 set the timing for switching an audio signal, and the JP3 and JP4 for switching a video signal.

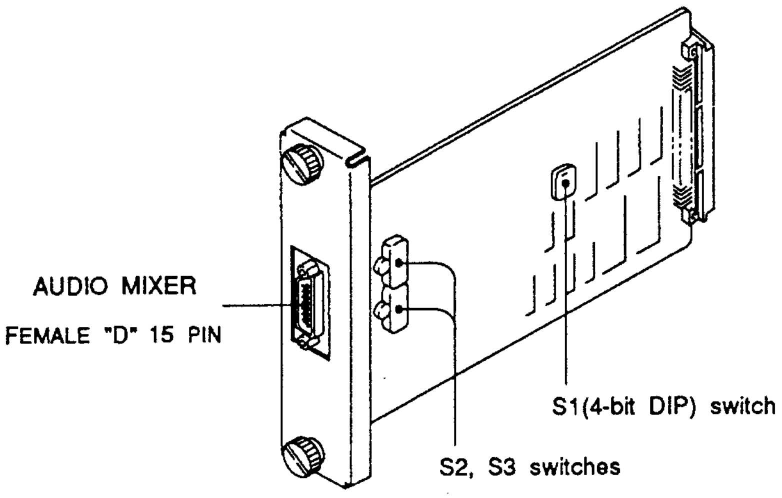
ASYNC: Asynchronous (The reference video signal connected to the switcher is used for synchronization.)

SYNC: Synchronous (A signal is synchronized with the vertical sync signal of the reference video signal connected to the BVE-900.)

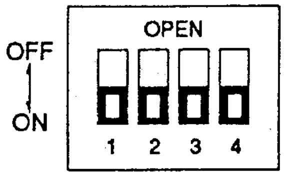
All jumpers are set to the ASYNC position at the factory.



BKE-916 SWITCH AND JUMPER SETTINGS

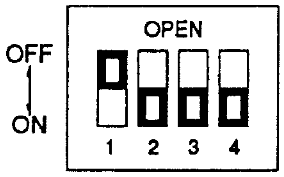

AUDIO MIXER
FEMALE "D" 15 PIN
S1(4-bit DIP) switch
S2, S3 switches

S1 switch (4-bit DIP switch)


OFF
ON
OPEN
1
2
3
4

All ON

MONO
MXP-29

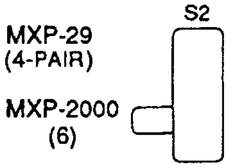

OFF
ON
OPEN
1
2
3
4

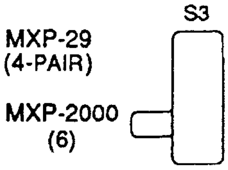
Set 1 to OFF

STEREO
MXP-2000

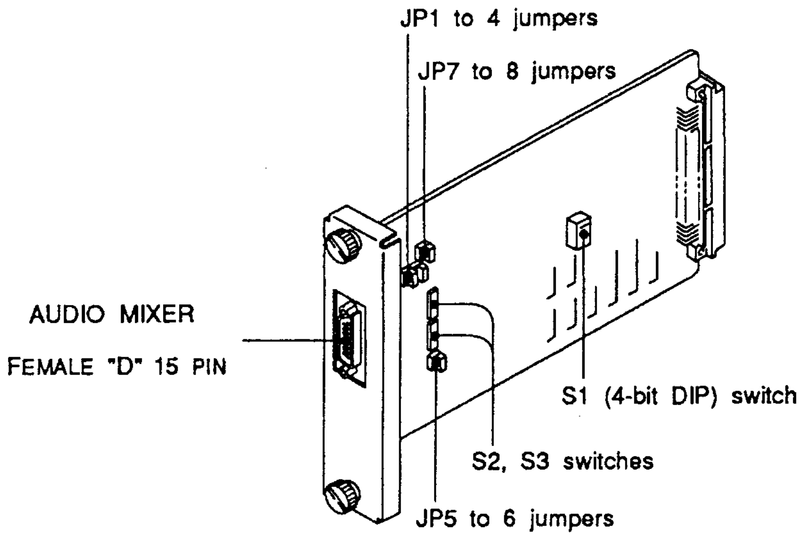
S2 and S3 switches

VCA LINES

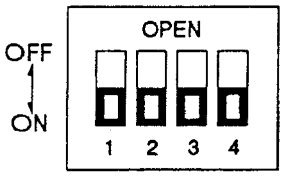

S2
MXP-29
(4-PAIR)
MXP-2000
(6)


S3
MXP-29
(4-PAIR)
MXP-2000
(6)

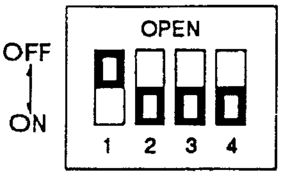
BKE-916A SWITCH AND JUMPER SETTINGS


JP1 to 4 jumpers
JP7 to 8 jumpers
AUDIO MIXER
FEMALE "D" 15 PIN
S1 (4-bit DIP) switch
S2, S3 switches
JP5 to 6 jumpers

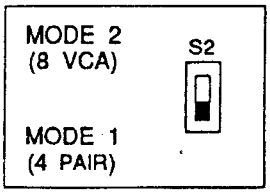
S1 switch (4-bit DIP switch)

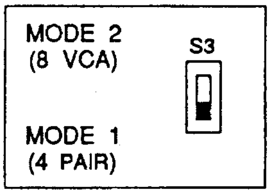

OPEN
OFF
ON
1 2 3 4

MONO
(4 PAIR MODE)


OPEN
OFF
ON
1 2 3 4

STEREO
(8 VCA MODE)


MODE 2
(8 VCA)
S2
MODE 1
(4 PAIR)


MODE 2
(8 VCA)
S3
MODE 1
(4 PAIR)

JP1 through JP4 jumpers

2-CH

JP4	OUT
JP3	IN
JP2	OUT
JP1	IN

4-CH

JP4	IN
JP3	OUT
JP2	IN
JP1	OUT

JP5 through JP8 jumpers

JP5	IN
JP6	OUT
JP7	IN
JP8	OUT

BVE-9000 PROGRAM NOTES
FOR EDITORS WITH SOFTWARE PRIOR TO VERSION V.2.21

The following items must be set for proper control of the **MXP-2900** series consoles. These are typical. Depending on system wiring and personal preference, many other settings are possible.

1. Ensure that on the "ASSIGN" page (F3 under the "INIT" menu) that there is an IDC Port (A through B) assigned as "Mixer l" under the 2nd column. This may be in conjunction with a switcher and/or monitor. Column 3 (STATUS) next to this port should display "RDY" Consult your **BVE-9000** manual for port setting information. Remember this port letter as you will need it later.

   Press RETURN.

2. Under [SHIFT] SETUP, F2-MAIN, F3-AUDIO MIXER GROUP there are several parameters to set.

   a. Fl-F4 - "CROSSPOINT ASSIGN"

   Crosspoints must be assigned to the source machines. These are assigned by the 9-pin control port that the machine is connected to. There can be only one crosspoint per machine no matter how many modules its audio feeds.

   EXAMPLE

   Suppose VTR 1 was controlled from port C of your **BVE-9000** system and its two channel audio was connected to mono modules 1 and 2 of the **MXP-2900** series console. Assuming standard wiring of VCA lines, crosspoint 01 then would be entered for port C (if port D was VTR 2 and its audio went to mono modules 3 and 4). Crosspoint 02 would be entered for port D, etc.

   *** IMPORTANT ***

   Crosspoint numbers are entered in hexadecimal format so OA would be entered for crosspoint 10, OB for 11 and so on. See Appendix E for a decimal to hex conversion chart.

   b. F5-F6 - "DEFAULT CROSSPOINT ASSIGN"

   Another way to set up crosspoints is under "DEFAULT CROSSPOINT ASSIGN". These settings take effect if the crosspoints are assigned FF (undefined) in the CROSSPOINT ASSIGN menus for the control ports. This can be useful if your system has more machines than can be connected to the audio console and patching is always necessary. Crosspoints are assigned by the logical ID 000, P2, etc.) and whenever a machine is patched into, say modules 1 and 2, its crosspoint would be 01, no matter what control port it was connected to.

   This menu is the only place that AUXl, AUX2, and BLACK can be assigned crosspoints. AUXl and AUX2 would be typically assigned to the SYS-Group lines and BLACK must be FF.

   Press RETURN to save settings.

   c. F7 - "MIXER CONTROL MODE"

   As is evident by the title, this is where you set up how the mixer is to be controlled in PREVIEW and SOURCE MONITORING modes. These two settings are independent of each other.

DATA 1 - PVW MODE, sets how previews are handled. The choices are as follows:

00:NO - No preview controls

01:EE - The recorder's EE switching is enabled to switch between playback and EE- The recorder's output is monitored at all times.

02:MON - The monitor/preview switcher built into the **MXP-2900** series console switches between RECORDER - EFFECT - RECORDER. A **BKE-963-3** monitor switcher control board is required for free recorder assignment. Fixed recorder switching is done by the EXT MON lines from the **BKE-9632** controlling the preview relays in the console.

03:LINE - The preview switching is done on the MIX Bus. In the typical mixer VCA control configuration single channel previews are not supported with this option.

Recommended setting - 02:MON

DATA 2 - MON SEL. Sets the method of source monitor switching. The choices are as follows:

00:NO - No monitor switching takes place.

01:LINE - All monitor switching is done on the Mix Bus. The built in monitor switcher is not used.

02:MON - All monitor switching is done by the built-in preview/monitor switcher of the **MXP-2900** series console. An input module's VCA input signal or panned output signal can be switched as directed by the jumper arrangement on the module's AEF board. The **BKE-9633** is required.

03:BOTH - The recorder is selected on the monitor/preview bus and all sources are selected on the MIX BUS. The **BKE-9633** is required for free recorder assignment. In Fixed recorder assignment mode, the EXT MON controls are activated to hear the recorder.

Recommended setting - 03:BOTH

DATA 3 - PVW BUS CONTROL set to 01:0N

DATA 4 - Does not apply to the **MXP-2900** series.

Press RETURN

d. F8-PORT ASSIGN

This sets which audio channel edit selections Al, A2, A3 or A4 enable the VCA lines from each **BKE-9632** board. Set DATA 1 to "OF" and DATA 2 to "OF" so the 1st two **BKE-9632** boards in your system generate VCA ramps for all four audio edit choices.

Set DATA 5 to "12" and DATA 6 to "48" for proper preview control from the **BKE-9632** boards in Fixed Recorder Assignment modes.

3. Under [SHIFT] SETUP, F3-IDC, choose the mixer/monitor IDC port, there are items which must be set for proper operation.

a. F4 - PARALLEL IF MIXER

DATA 1 should be 00 (SUSTAIN).

If you desire a -6db crossover during crossfades set DATA 2 to 01. DO NOT SET DATA 2 TO 02 (LINEAR) WHEN USING THE MXP-2900 CONSOLE WITH THE MXBK-EI22.

If it is necessary to have more than 12 VCA lines (up to 36 are possible with three **BKE-9632** boards) set DATA 3 to 01 (VCA expansion on)

Press return.

If a **BKE-9633** monitor switcher control board is installed in the IDC, choose F5 "MONITOR SWITCHER".

DATA 1 - Set Bit 7 to O for active low control and set bits 4 and 3 depending on whether your system is wired for binary or parallel control.

00: Parallel (I) (for **MXP-2900**)
01: Parallel (2)
10: Binary

EXAMPLE: For binary mode, active low, change to BIT MODE and set the bits to:

```
        X O OO 1 OXX
bit #   8 7 6 5 4 3 2 1
```

X = Don't care. These bits are for
video preview switcher control

NOTE: BKE-9632 E-Proms in the **BKE-9600** IDC must be version 1.15 or above for separate Audio and Video control settings.

Press RETURN 3 times to get back to SETUP dialogue on the EDL page.

4. There are monitor switcher crosspoints to be set if you have a **BKE-9633** board in the IDC and are working in the Free Recorder Assignment mode. It is important to note that the first monitor crosspoint in the Mixer is BLACK (silence) and it is number 00. The second monitor crosspoint in the Mixer is PROGRAM OUT (EFFECT) and is number 01. These designations are not changeable.

Under [SHIFT], SETUP, MAIN, F4-MONITOR SWITCHER GROUP:

Crosspoints are assigned the same way here as in the "Audio Mixer Group".

*** * * IMPORTANT * * ***

The video and audio monitor switcher crosspoints are set in this menu and they are identical. If applicable, arrange your video preview switcher so that input 1 (crosspoint 00) is black burst and input 2 (crosspoint 01) is the output of your program switcher. Input 3 (crosspoint 02) would be the machine which has its audio input into the first module(s) on the **MXP-2900** series audio console. The inputs would then follow sequentially.

Under DEFAULT CROSSPOINT 2 set the BLACK crosspoint to 00.

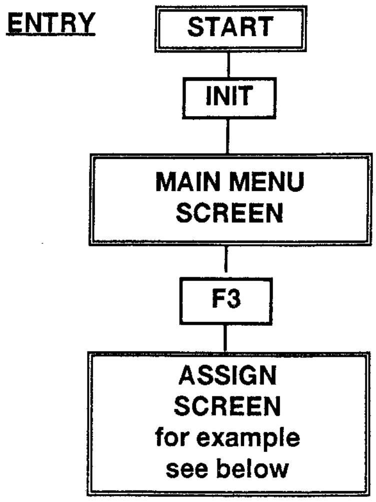
Under DEFAULT CROSSPOINT 3 set the EFFECT crosspoint to 01

Press RETURN to save your settings.

BVE-9000 PROGRAM NOTES
FOR EDITORS WITH SOFTWARE VERSION V.2.21

Version V.2.21 allows the same conditions that are set with SETUP: MAIN:GROUP (video/audio/monitor switcher) and SETUP:MAIN:GROUP:DEVICE SELECT in the earlier software version, to be set using only the INIT:ASSIGN screen. Although the SETUP protocol in V.2.21 is not restricted, the use of INIT:ASSIGN is convenient.

Data on the ASSIGN screen can be saved in an SSU file in addition to the EEPROM in the MAIN SETUP.



Screen sample:

BVE-9000 (N) DEVICE ASSIGNMENT

					VIDEO		AUDIO		
	PORT NAME	DEV SEL	STATE	LOGID	EFF	MON	EFF	MON	OFFSET
A:	DVR-18	VTR	RDY	P1	3	3	3	3	
B:	DVR-1000	VTR	RDY	R	1	1	1	1	00:00:00:00
C:	DVR-10	VTR	RDY	R2	2	2	2	2	01:00:00:00
D:	BVW-75	VTR	LOCAL	P5	7	7	7	7	
E:	DME-5000	DME	RDY	D4	6	6			
F:	DME-5000	DME	RDY						
G:			LOCAL						
H:			LOCAL						
I :	DVR-18	VTR	RDY	P2	4	4	4	4	
J:	DVR-18	VTR	RDY	P3	5	5	5	5	
K:			LOCAL						
L:			LOCAL						
M:	GVG-200	SW/MX1/MON	RDY						
N:			LOCAL						
O:			LOCAL						
P:			LOCAL						
Q:			LOCAL						
R:			LOCAL						
S:			LOCAL						
T:			LOCAL						
U:			LOCAL						
V:			LOCAL						
W:			LOCAL						
X:		VTR	RDY	R3	8	8	8	8	02:00:00:00
Y:		VTR	RDY	P6	9	9	9	9	
Z:			LOCAL						
a:			LOCAL						
b:			LOCAL						
- :			-------	AX1	ME1	15			
- :			-------	AX2	16	16			
- :			-------	BLK	0	0			
- :			-------	EFF	PGM	20	PGM	10	

NOTE: "EFF" in the LOGID column is the Program Out signal of the Video Switcher, and the Line Out sigal of the Audio Mixer

OPERATING PROCEDURES

Move cursor with the up, down, right, left arrows to the item selected for change. Dialog and menus change in accordance with item selected.

NOTE: Examples use the settings shown on the sample ASSIGN screen above.

1. PORT NAME

a. Move cursor to the letter: of the PORT to be named.

Example: select M: menu displayed:

SELECT PORT PORT NO. M =

F1	F2	F3	F4	F5	F6	F7	F8
							CHG PAGE

b. Press |ENTER|. Enter new name or change existing name.
The name can be up to 8 characters long. Then press |ENTER| again.

Example: Change the name for M: from **GVG-200** to **DVS-8000**. Display will show:

PORT LABEL PORT NO. M = [GVG-200] ?

F1	F2	F3	F4	F5	F6	F7	F8
UNDEFINED							CHG PAGE

To delete name	press function key |F1|
To cancel entry	press |RET|

2. DEV SEL

To set device select data, move cursor to the desired DEV SEL column/PORT NAME row. Repeated pressing of function key |F7| will cycle through four menus. Press the appropriate function key to assign the desired device type to the port.

F1	F2	F3	F4	F5	F6	F7	F8
UNDEFINED	VTR/ATR		DNE		DISPLAY	---1---	CHG PAGE

F1	F2	F3	F4	F5	F6	F7	F8
UNDEFINED	SWER	MIXER 1	MIXER 2	MONITOR		---2---	CHG PAGE

F1	F2	F3	F4	F5	F6	F7	F8
UNDEFINED	GRP 1				FLPY DISK	---3---	CHG PAGE

F1	F2	F3	F4	F5	F6	F7	F8
UNDEFINED	SAVE ALL	RCL ALL	DFLT ALL			---4---	CHG PAGE

NOTES:

a. Multiple settings are allowed for the port assigned to the Switcher, Monitor, Mixer IDC. The function keys for SWER MIXER1, MIXER2, MONITOR are ON/OFF keys.

b. The last menu displayed above contains functions which allow devise select and crosspoint assignments to be exchanged between ASSIGN and SETUP. ASSIGN is given priority if the data is set both ASSIGN and SETUP.

|F2| SAVE ALL - saves crosspoint settings and device select data to the SETUP EEPROM.

|F3| RCL ALL - Recalls the crosspoint settings and device select date from SETUP EEPROM into ASSIGN.

|F4| DFLT ALL - automatically determines and sets the device type of the port, and sets default crosspoint assignments for VTRs and DMEs.

c. The SETUP EEPROM does not have sufficient space to store Audio Monitor Switcher crosspoint assignments data. When saving data to SETUP EEPROM, the audio crosspoint of MONITOR SWER will not be copied. When recalling data from SETUP EEPROM, Audio Monitor Switcher crosspoints will default to the settings for the Video Monitor Switcher.

All crosspoint data will be saved when saving ASSIGN data to a SSU file. It is recommended that the ASSIGN data should be saved on a floppy disk as as a SSU file. This provides the capability of each operator having their own settings.

3. LOGID

To set logical ID data, move cursor to the desired LOGID column/PORT NAME row. Only ports that have been assigned to a VTR or a DME can be given a logical ID. The following menus will be displayed. See DEV SEL Operational Notes b. and c. for description relevant to the bottom menu.

SELECT LOGID PORT NO. J = P3 ?

F1	F2	F3	F4	F5	F6	F7	F8
UNDEFINED						---1---	CHG PAGE

F1	F2	F3	F4	F5	F6	F7	F8
	SAVE ALL	RCL ALL	DFLT ALL			---2---	CHG PAGE

Use the monitor select keys. Settings range from R through R8 or P1 through P12. To leave the selection undefined, press function key |F1|.

4. VIDEO EFF

To set VIDEO EFF crosspoints, move cursor to the desired VIDEO EFF column/PORT NAME row or to a corresponding AX1, AX2, BLK, EFF row at the bottom of the column. The following menus will be displayed. See DEV SEL Operational Notes b. and c. for description relevant to the bottom menu.

SELECT V-EFF XPT PORT NO. J = 5 ?

F1	F2	F3	F4	F5	F6	F7	F8
UNDEFINED	PGM	ME 1	ME 2	ME3		---1---	CHG PAGE

F1	F2	F3	F4	F5	F6	F7	F8
	SAVE ALL	RCL ALL	DFLT ALL			---2---	CHG PAGE

Enter a Video Switcher crosspoint decimal number from 0 through 63 (not HEX) or use the function keys shown in the top menu.

NOTE: The crosspoint selection of the EFF item is valid only for switchers with a built-in PVW switcher such as **DVS-8000.**

5. VIDEO MON

For systems using an External Monitor Switcher such as BVS-V1201 move cursor to the desired VIDEO MON column/PORT NAME row or to a corresponding AX1, AX2, BLK, EFF row at the bottom of the column. The following menus will be displayed. See DEV SEL Operational Notes b. and c. for description relevant to the bottom menu.

SELECT V-MON XPT PORT NO. J = 5 ?

F1	F2	F3	F4	F5	F6	F7	F8
UNDEFINED						---1---	CHG PAGE

F1	F2	F3	F4	F5	F6	F7	F8
	SAVE ALL	RCL ALL	DFLT ALL			---2---	CHG PAGE

6. AUDIO EFF

To set AUDIO EFF crosspoints, move cursor to the desired AUDIO EFF column/PORT NAME row or to a corresponding AX1, AX2, BLK, EFF row at the bottom of the column. The following menus will be displayed. See DEV SEL Operational Notes b. and c. for description relevant to the bottom menu.

SELECT A-EFF XPT PORT NO. J = 5 ?

F1	F2	F3	F4	F5	F6	F7	F8
UNDEFINED	PGN					---1---	CHG PAGE

F1	F2	F3	F4	F5	F6	F7	F8
	SAVE ALL	RCL ALL	DFLT ALL			---2---	CHG PAGE

Enter an Audio Mixer crosspoint decimal number from 0 through 63 (not HEX) or use the function keys shown in the top menu.

The crosspoint selection of the EFF item is valid only for switchers with a built-in PVW switcher such as VSP-8000 and MXP-2900 series consoles.

If a VSP-8000 is being used, refer to the chart below when entering crosspoints.

If the optional VSBK-8001 routing switcher is used, the relationship between the input connectors and the corresponding input channels is controlled by the routing switcher.

INPUT CHANNEL ▶	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
	2 CHANNEL SOURCE CROSSPOINT ASSIGNMENT																NOT USED
	01		02		03		04		05		06		07		08		09 THROUGH 31
	4 CHANNEL SOURCE CROSSPOINT ASSIGNMENT																
	33				34				35				36				37 THROUGH 48
	2 AND 4 CHANNEL SOURCE CROSSPOINT ASSIGNMENT																
	01		49				50				51				08		52 THROUGH 63

DESIGNATE 00 (ZERO) AS THE CROSSPOINT FOR BLK.

7. AUDIO MON

For systems using an External Monitor Switcher such as BVS-V1201 move cursor to the desired AUDIO MON column/PORT NAME row or to a corresponding AX1, AX2, BLK, EFF row at the bottom of the column. The following menus will be displayed. See DEV SEL Operational Notes b. and c. for description relevant to the bottom menu.

SELECT A-MON XPT   PORT NO. J = 5 ?

F1	F2	F3	F4	F5	F6	F7	F8
UNDEFINED						---1---	CHG PAGE

F1	F2	F3	F4	F5	F6	F7	F8
	SAVE ALL	RCL ALL	DFLT ALL			---2---	CHG PAGE

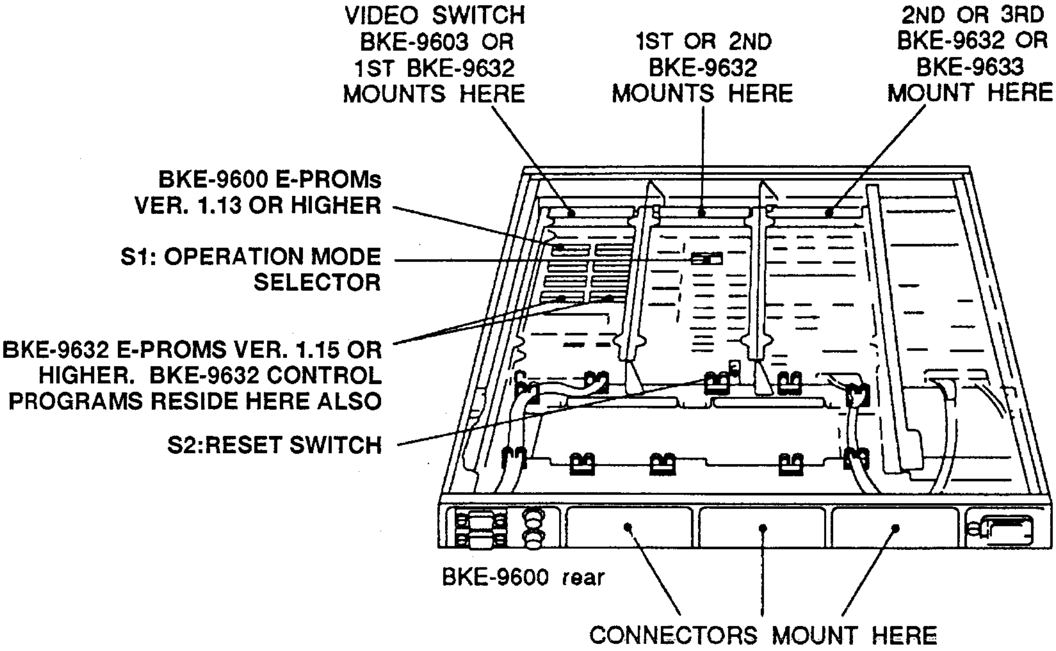
8. OFFSET

To set recorder offset, move cursor to the desired OFFSETF column/PORT NAME row. The following menu will be displayed. Enter the desired offset time between recorders.

MULTI RECORDER   PORT NO. C   OFFSET TIME = 01:00:00:00 ?

F1	F2	F3	F4	F5	F6	F7	F8
UNDEFINED							CHG PAGE

BKE-9600 ORIENTATION AND SWITCH SETTINGS

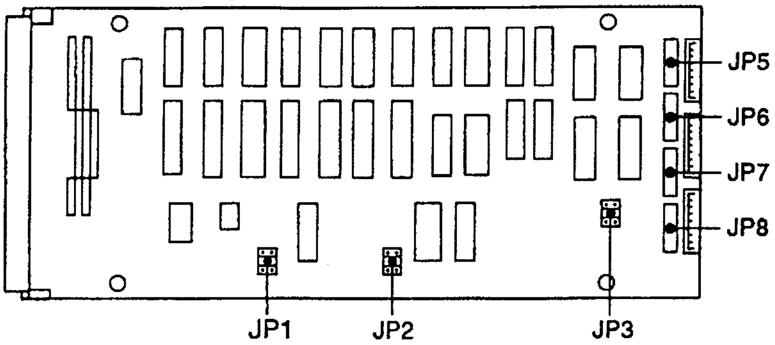

VIDEO SWITCH BKE-9603 OR 1ST BKE-9632 MOUNTS HERE
1ST OR 2ND BKE-9632 MOUNTS HERE
2ND OR 3RD BKE-9632 OR BKE-9633 MOUNT HERE
BKE-9600 E-PROMs VER. 1.13 OR HIGHER
S1: OPERATION MODE SELECTOR
BKE-9632 E-PROMS VER. 1.15 OR HIGHER. BKE-9632 CONTROL PROGRAMS RESIDE HERE ALSO
S2:RESET SWITCH
BKE-9600 rear
CONNECTORS MOUNT HERE

S1 Switch Settings:

S1-1 ON
S1-2 ON
S1-3 ON
S1-4 ON
S1-5 OFF WHEN BKE-9633 INSTALLED
S1-6 ON (NTSC)
S1-7 ON (NTSC)
S1-8 ON (NTSC)

BKE-9632 SWITCH AND JUMPER SETTINGS

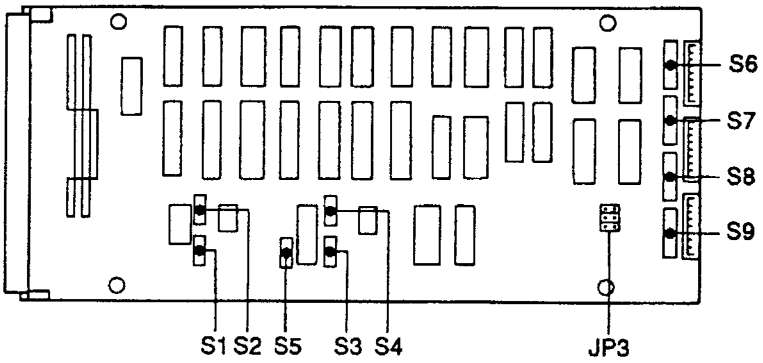
Serial No. 10001 to 11400

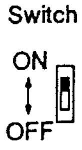

JP5
JP6
JP7
JP8
JP1
JP2
JP3

O : Insert location

	JP1			JP2			JP3			JP5								JP6						JP7						JP8					
	1	2	3	1	2	3	1	2	3	1	2	3	4	5	6	7	8	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
Mode 1 (Single output mode)		O			O		O			O		O		O		O		O		O		O		O			O			O			O		
Mode 2 (Double output mode)		O			O		O				O		O		O		O		O		O		O		O			O			O			O	

Serial No. 11401 and up


S6
S7
S8
S9
S1 S2 S5 S3 S4
JP3


Switch
ON
OFF

O : Insert location

	JP3			S5	S6	S7	S8	S9
	1	2	3					
Mode 1 (Single output mode)	O			ON	ON	ON	ON	ON
Mode 2 (Double output mode)	O			ON	OFF	OFF	OFF	ON

APPENDIX C

EDITOR TO CONSOLE INTERCONNECT CABLE DATA AND WIRE LISTS

CONTENTS

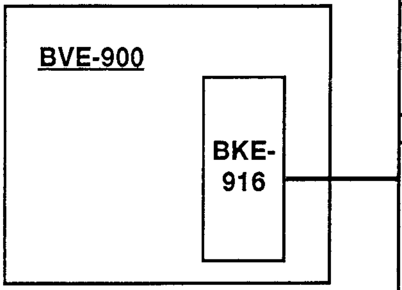
Page

BVE-900/BVE-910 Editors Connector Orientation and Signal Assignments .... APP C-2
BVE-9000 Editor Connector Orientation and Signal Assignments .... APP C-3
Console Editor Entry Ports Connector Orientation .... APP C-4
Binary Mode Console Editor Entry Ports Connector Signal Assignments .... APP C-5
Parallel Mode Console Editor Entry Ports Connector Signal Assignments .... APP C-6
Interconnect Cable Connector Orientation Diagrams .... APP C-7
BVE-900/910 Editor To Console .... APP C-7
BVE-9000 Editor To Console .... APP C-7
Wiring Notes .... APP C-8
Use Of SYS-GP Control Lines For VCA Control .... APP C-8

WIRE LISTS QUICK FIND CHART

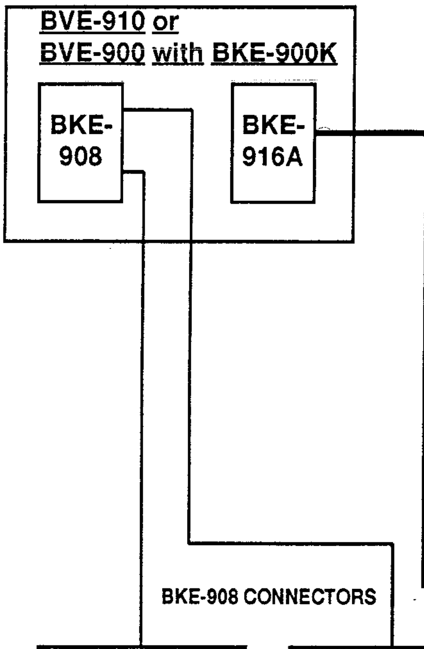
	EDITOR			CONSOLE MXP-			ASN MODE		VTRs			INPUT MODULES			
No	**900**	**910**	**9000**	**2916**	**2926**	**2936**	**FIXD**	**FREE**	**2CH**	**4CH**	**MIXD**	**MONO**	**STER**	**MIXD**	**Page**
FX16-1			X	X			X		X			X			APP C-9
FX16-2			X	X			X		X				X		APP C-10
FX16-3			X	X			X		X				X		APP C-11
FR16-1			X	X				X	X			X			APP C12
FR16-2			X	X				X		X			X		APP C-13
FX26-1			X		X		X		X			X			APP C-14
FX26-2			X		X		X		X				X		APP C-15
FR26-1			X		X			X	X			X			APP C-16
FR26-2			X		X			X		X		X			APP C-17
FR26-3			X		X			X		X			X		APP C-18
FX36-1			X			X	X		X			X			APP C-19
FR36-1			X			X		X	X			X			APP C-20
FR36-2			X			X		X		X		X			APP C-21
FR36-3			X			X		X		X			X		APP C-22

BVE-900/BVE910 EDITORS CONNECTOR ORIENTATION AND SIGNAL ASSIGNMENTS



BKE-916 CONNECTOR			
WITH SWITCHES SET TO MXP-2000 (SEE NOTE)		WITH SWITCHES SET TO MXP-29 (SEE NOTE)	
PIN	SIGNAL	PIN	SIGNAL
1	VCA 1	1	VCA 1L
2	VCA 2	2	VCA 1R
3	VCA 3	3	VCA 2L
4	VCA 4	4	VCA 2R
5	VCA 5	5	VCA 3L
6	VCA 6	6	VCA 3R
7	NOT USED	7	VCA 4L
8	NOT USED	8	VCA 4R
9	COMMON	9	COMMON
10	EXT MON 1	10	EXT MON 1
11	EXT MON 2	11	EXT MON 2
12	NOT USED	12	NOT USED
13	NOT USED	13	NOT USED
14	NOT USED	14	NOT USED
15	NOT USED	15	NOT USED

NOTE:
See **BKE-916** SWITCH SETTINGS, APPENDIX B.
Settings **MXP-2000:**
Console input modules all stereo or mixed.
Settings **MXP-29:**
Console input modules all mono.



BKE-916A CONNECTOR			
WITH S1 at STEREO S2,S3 at MODE 2 (SEE NOTE)		WITH S1 at MONO S2,S3 at MODE 1 (SEE NOTE)	
PIN	SIGNAL	PIN	SIGNAL
1	VCA 1	1	VCA 1L
2	VCA 2	2	VCA 1R
3	VCA 3	3	VCA 2L
4	VCA 4	4	VCA 2R
5	VCA 5	5	VCA 3L
6	VCA 6	6	VCA 3R
7	VCA 7	7	VCA 4L
8	VCA 8	8	VCA 4R
9	COMMON	9	COMMON
10	EXT MON 1	10	EXT MON 1
11	EXT MON 2	11	EXT MON 2
12	EXT MON 3	12	EXT MON 3
13	EXT MON 4	13	EXT MON 4
14	NOT USED	14	NOT USED
15	NOT USED	15	NOT USED

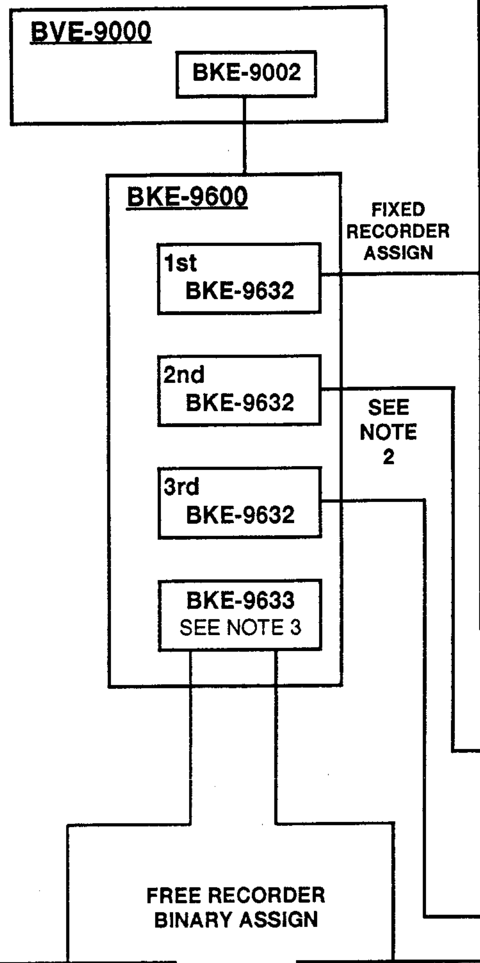
BKE-908 CONNECTORS

(2) (LOWER)	
PIN	SIGNAL
3	L: A3-A OUT
4	L: A3-B OUT
5	L: A3-C OUT
6	L: A3-D OUT
1	L: A4-A OUT
9	L: A4-B OUT
10	L: A4-C OUT
11	L: A4-D OUT
12	GND
PINS 2, 7, 8, 13-15 NOT USED	

(1) (UPPER)	
PIN	SIGNAL
3	L: A1-A OUT
4	L: A1-B OUT
5	L: A1-C OUT
6	L: A1-D OUT
1	L: A2-A OUT
9	L: A2-B OUT
10	L: A2-C OUT
11	L: A2-D OUT
12	GND
PINS 2, 7, 8, 13-15 NOT USED	

NOTE:
See **BKE-916A** SWITCH SETTINGS, APPENDIX B.
Settings STEREO/MODE 2
Console input modules all stereo or mixed.
Settings MONO/MODE 1
Console input modules all mono.

BVE-9000 EDITOR CONNECTOR ORIENTATION AND SIGNAL ASSIGNMENTS



1ST BKE-9632 CONNECTOR
(SEE NOTE 1)

MODE 1		MODE 2	
PIN	SIGNAL	PIN	SIGNAL
1,2	NOT USED	1,2	NOT USED
3	VCA 1	2	VCA 1L
4	VCA 2	4	VCA 1R
5	VCA 3	5	VCA 2L
6	VCA 4	6	VCA 2R
7	VCA 5	7	VCA 3L
8	VCA 6	8	VCA 3R
9	VCA 7	9	VCA 4L
10	VCA 8	10	VCA 4R
11	VCA 9	11	VCA 5L
12	VCA 10	12	VCA 5R
13	VCA 11	13	VCA 6L
14	VCA 12	14	VCA 6R
19	COMMON 1	19	COMMON 1
20	EXT MON 1	20	EXT MON 1
21	EXT MON 2	21	EXT MON 2
22	NOT USED	22	NOT USED
23	MUTE 1	23	MUTE 1
24	MUTE 2	24	MUTE 2
25	COMMON 2	25	COMMON 2

- SIGNAL ASSIGNMENTS SAME AS 1st
- REQUIRED FOR 4-CHANNEL OP
- ADDS 2 EXT MON AND MUTE LINES
- INCREASES VCA CONTROL LINES TO 24

- SIGNAL ASSIGNMENTS SAME AS 1st
- USED ONLY IF MORE THAN 24 VCA CONTROL LINES ARE NEEDED
- EXT MON & MUTE NON-FUNCTIONAL

LOWER CONNECTOR

PIN	SIGNAL
13	A3 SELECT 1
14	A3 SELECT 2
15	A3 SELECT 3
16	A3 SELECT 4
17	A3 SELECT 5
18	A3 SELECT 6
19	A3 SELECT 7
20	A3 SELECT 8
21	A3 SELECT 9
22	A3 SELECT 10
25	A4 SELECT 1
26	A4 SELECT 2
27	A4 SELECT 3
28	A4 SELECT 4
29	A4 SELECT 5
30	A4 SELECT 6
31	A4 SELECT 7
32	A4 SELECT 8
33	A4 SELECT 9
34	A4 SELECT 10
24	GND
36	GND
PINS 1 THRU 12 NOT USED	

UPPER CONNECTOR

PIN	SIGNAL
13	A1 SELECT 1
14	A1 SELECT 2
15	A1 SELECT 3
16	A1 SELECT 4
17	A1 SELECT 5
18	A1 SELECT 6
19	A1 SELECT 7
20	A1 SELECT 8
21	A1 SELECT 9
22	A1 SELECT 10
25	A2 SELECT 1
26	A2 SELECT 2
27	A2 SELECT 3
28	A2 SELECT 4
29	A2 SELECT 5
30	A2 SELECT 6
31	A2 SELECT 7
32	A2 SELECT 8
33	A2 SELECT 9
34	A2 SELECT 10
24	GND
36	GND
PINS 1 THRU 12 NOT USED	

NOTES

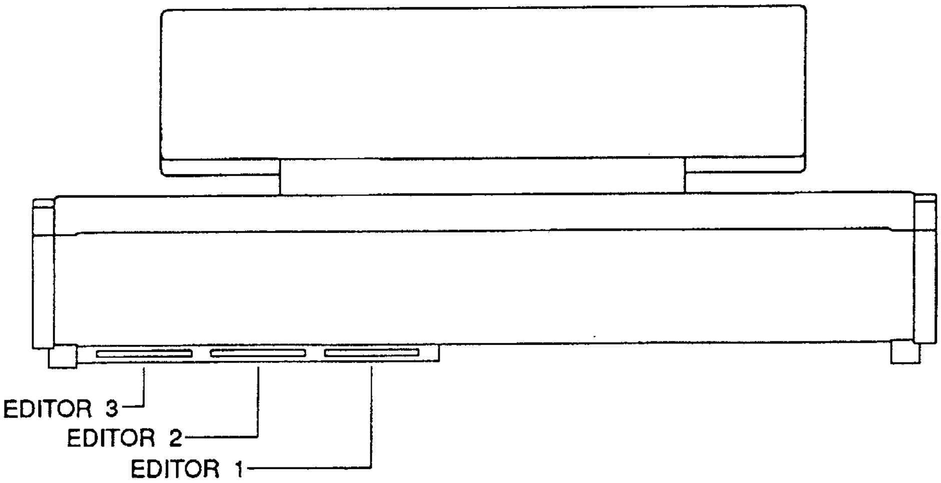
1. See **BKE-9632** JUMPER AND SWITCH SETTINGS, APPENDIX B

2. Depending on application, a 2nd or 3rd **BKE-9632** may be required. In general:

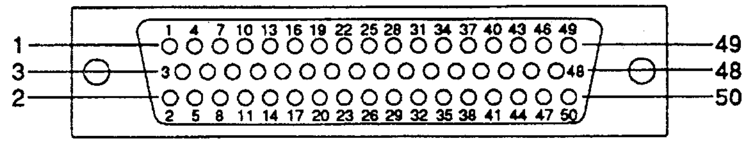
2-CH	**MXP-2916,**	1 **BKE-9632**
	MXP-2926,	2 **BKE-9632**
	MXP-2936,	3 **BKE-9632**
4-CH	2 OR 3 **BKE-9632**	

3. 2-CH 1 **BKE-9633,** 1 **BKE-9600**
4-CH 2 **BKE-9633,** 2 **BKE-9600**

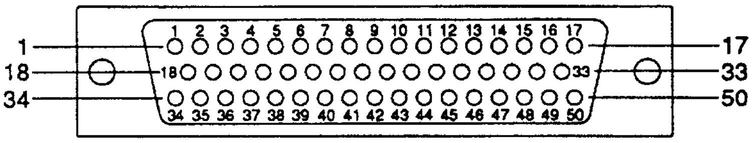
CONSOLE EDITOR ENTRY PORTS
CONNECTOR ORIENTATION


EDITOR 3
EDITOR 2
EDITOR 1

CONSOLE REAR VIEW


1 4 7 10 13 16 19 22 25 28 31 34 37 40 43 46 49
3 48
2 5 8 11 14 17 20 23 26 29 32 35 38 41 44 47 50
1
3
2
49
48
50

"ANSLEY" CONNECTOR (MALE)


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
18 33
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
1
18
34
17
33
50

"AMP"/"ITT"/"CANNON"/"JAE"
TYPE CONNECTOR (MALE)

"ANSLEY" VS NON-"ANSLEY" CONNECTOR PIN TRANSLATION

BINARY MODE CONSOLE EDITOR PORTS SIGNAL ASSIGNMENTS

AN = ANSLEY CONNECTOR PIN # **NON** = NON-ANSLEY CONNECTOR PIN #

EDITOR 1		
AN	SIGNAL	NON
48	CH 1 VCA	33
45	CH 2 VCA	32
42	CH 3 VCA	31
39	CH 4 VCA	30
36	CH 5 VCA	29
33	CH 6 VCA	28
30	CH 7 VCA	27
27	CH 8 VCA	26
24	CH 9 VCA	25
21	CH 10 VCA	24
18	CH 11 VCA	23
15	CH 12 VCA	22
12	CH 13 VCA	21
9	CH 14 VCA	20
50	A1-1	50
44	A1-2	48
38	A1-3	46
32	A1-4	44
26	A1-5	42
46	A2-1	16
40	A2-2	14
34	A2-3	12
28	A2-4	10
25	A2-5	9
47	A3-1	49
41	A3-2	47
35	A3-3	45
29	A3-4	43
23	A3-5	41
49	A4-1	17
43	A4-2	15
37	A4-3	13
31	A4-4	11
22	A4-5	8
6	not used	19
5	not used	35
4	not used	2
3	not used	18
2	GND	34
1	CON SENSE	1
7	not used	3
8	not used	36
10	not used	4
11	not used	37
13	not used	5
14	not used	38
16	not used	6
17	not used	39
19	not used	7
20	not used	40

EDITOR 2		
AN	SIGNAL	NON
48	CH 15 VCA	33
45	CH 16 VCA	32
42	CH 17 VCA	31
39	CH 18 VCA	30
36	CH 19 VCA	29
33	CH 20 VCA	28
30	CH 21 VCA	27
27	CH 22 VCA	26
24	CH 23 VCA	25
21	CH 24 VCA	24
18	CH 25 VCA	23
15	CH 26 VCA	22
12	CH 27 VCA	21
9	CH 28 VCA	20
6	CH 29 VCA	19
3	CH 30 VCA	18
50	CH15-SOLO-L	50
49	CH15-SOLO-R	17
47	CH16-SOLO-L	49
46	CH16-SOLO-R	16
44	CH17-SOLO-L	48
43	CH17-SOLO-R	15
41	CH18-SOLO-L	47
40	CH18-SOLO-R	14
38	CH19-SOLO-L	46
37	CH19-SOLO-R	13
35	CH20-SOLO-L	45
34	CH20-SOLO-R	12
32	CH21-SOLO-L	44
31	CH21-SOLO-R	11
29	CH22-SOLO-L	43
28	CH22-SOLO-R	10
26	CH23-SOLO-L	42
25	CH23-SOLO-R	9
23	CH24-SOLO-L	41
22	CH24-SOLO-R	8
20	CH25-SOLO-L	40
19	CH25-SOLO-R	7
17	CH26-SOLO-L	39
16	CH26-SOLO-R	6
14	CH27-SOLO-L	38
13	CH27-SOLO-R	5
11	CH28-SOLO-L	37
10	CH28-SOLO-R	4
8	CH29-SOLO-L	36
7	CH29-SOLO-R	3
5	CH30-SOLO-L	35
4	CH30-SOLO-R	2
1	not used	1
2	not used	34

EDITOR 3		
AN	SIGNAL	NON
48	CH 21 VCA	33
45	CH 22 VCA	32
42	CH 23 VCA	31
39	CH 24 VCA	30
36	CH 25 VCA	29
33	CH 26 VCA	28
30	CH 27 VCA	27
27	CH 28 VCA	26
24	CH 29 VCA	25
21	CH 30 VCA	24
50	CH21-SOLO-L	50
49	CH21-SOLO-R	17
47	CH22-SOLO-L	49
46	CH22-SOLO-R	16
44	CH23-SOLO-L	48
43	CH23-SOLO-R	15
41	CH24-SOLO-L	47
40	CH24-SOLO-R	14
38	CH25-SOLO-L	46
37	CH25-SOLO-R	13
35	CH26-SOLO-L	45
34	CH26-SOLO-R	12
32	CH27-SOLO-L	44
31	CH27-SOLO-R	11
29	CH28-SOLO-L	43
28	CH28-SOLO-R	10
26	CH29-SOLO-L	42
25	CH29-SOLO-R	9
23	CH30-SOLO-L	41
22	CH30-SOLO-R	8
20	SYS-GP-1	40
19	SYS-GP-2	7
18	SYS-GP-3	23
17	SYS-GP-4	39
16	PREVIEW-1	6
15	PREVIEW-2	22
14	PREVIEW-3	38
13	PREVIEW-4	5
12	MUTE-1	21
11	MUTE-2	37
10	MUTE-3	4
9	MUTE-4	20
5	BYPASS	35
4	+5V	2
3	ANALOG GND	18
2	DIGITAL GND	34
1	CHASSIS GND	1
6	not used	19
7	not used	3
8	not used	36

PARALLEL MODE CONSOLE EDITOR PORTS SIGNAL ASSIGNMENTS

AN = ANSLEY CONNECTOR PIN # **NON** = NON-ANSLEY CONNECTOR PIN #

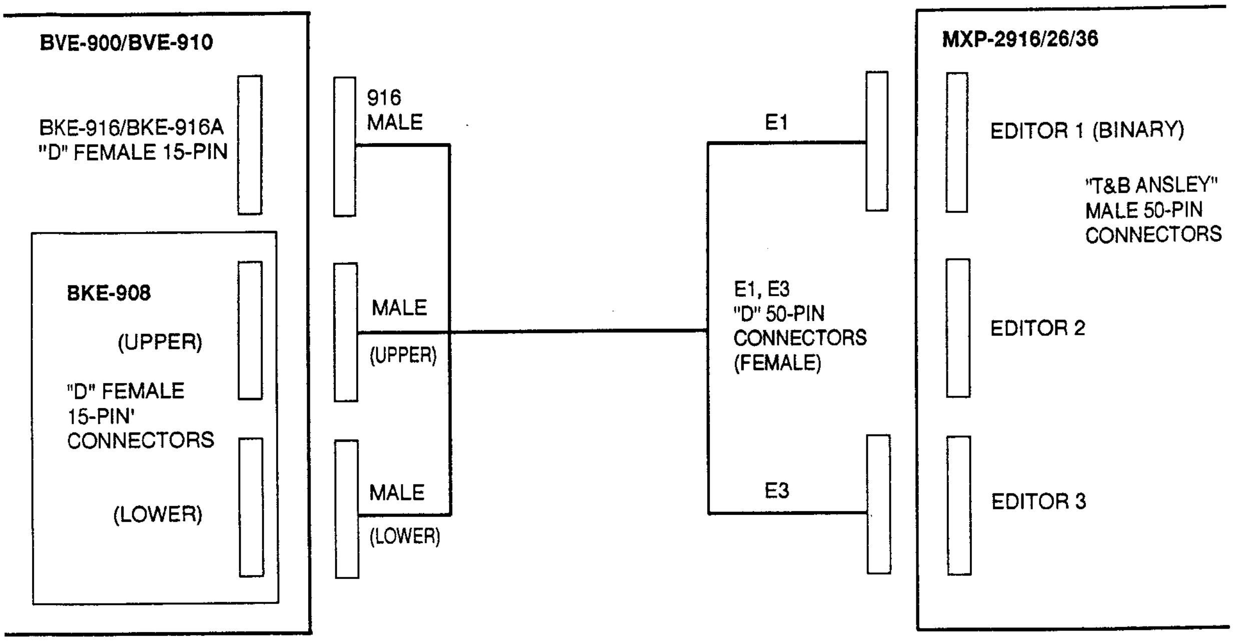
EDITOR 1		
AN	SIGNAL	NON
48	CH 1 VCA	33
48	CH 1 VCA	33
45	CH 2 VCA	32
42	CH 3 VCA	31
39	CH 4 VCA	30
36	CH 5 VCA	29
33	CH 6 VCA	28
30	CH 7 VCA	27
27	CH 8 VCA	26
24	CH 9 VCA	25
21	CH 10 VCA	24
18	CH 11 VCA	23
15	CH 12 VCA	22
12	CH 13 VCA	21
9	CH 14 VCA	20
50	CH1-SOLO-L	50
49	CH1-SOLO-R	17
47	CH2-SOLO-L	49
46	CH2-SOLO-R	16
44	CH3-SOLO-L	48
43	CH3-SOLO-R	15
41	CH4-SOLO-L	47
40	CH4-SOLO-R	14
38	CH5-SOLO-L	46
37	CH5-SOLO-R	13
35	CH6-SOLO-L	45
34	CH6-SOLO-R	12
32	CH7-SOLO-L	44
31	CH7-SOLO-R	11
29	CH8-SOLO-L	43
28	CH8-SOLO-R	10
26	CH9-SOLO-L	42
25	CH9-SOLO-R	9
23	CH10-SOLO-L	41
22	CH10-SOLO-R	8
20	CH11-SOLO-L	40
19	CH11-SOLO-R	7
17	CH12-SOLO-L	39
16	CH12-SOLO-R	6
14	CH13-SOLO-L	38
13	CH13-SOLO-R	5
11	CH14-SOLO-L	37
10	CH14-SOLO-R	4
6	PARALLEL-1	19
5	PARALLEL-2	35
4	PARALLEL-3	2
3	PARALLEL-4	18
2	GND	34
1	CON SENSE	1
7	not used	3
8	not used	36

EDITOR 2		
AN	SIGNAL	NON
48	CH 15 VCA	33
48	CH 15 VCA	33
45	CH 16 VCA	32
42	CH 17 VCA	31
39	CH 18 VCA	30
36	CH 19 VCA	29
33	CH 20 VCA	28
30	CH 21 VCA	27
27	CH 22 VCA	26
24	CH 23 VCA	25
21	CH 24 VCA	24
18	CH 25 VCA	23
15	CH 26 VCA	22
12	CH 27 VCA	21
9	CH 28 VCA	20
6	CH 29 VCA	19
3	CH 30 VCA	18
50	CH15-SOLO-L	50
49	CH15-SOLO-R	17
47	CH16-SOLO-L	49
46	CH16-SOLO-R	16
44	CH17-SOLO-L	48
43	CH17-SOLO-R	15
41	CH18-SOLO-L	47
40	CH18-SOLO-R	14
38	CH19-SOLO-L	46
37	CH19-SOLO-R	13
35	CH20-SOLO-L	45
34	CH20-SOLO-R	12
32	CH21-SOLO-L	44
31	CH21-SOLO-R	11
29	CH22-SOLO-L	43
28	CH22-SOLO-R	10
26	CH23-SOLO-L	42
25	CH23-SOLO-R	9
23	CH24-SOLO-L	41
22	CH24-SOLO-R	8
20	CH25-SOLO-L	40
19	CH25-SOLO-R	7
17	CH26-SOLO-L	39
16	CH26-SOLO-R	6
14	CH27-SOLO-L	38
13	CH27-SOLO-R	5
11	CH28-SOLO-L	37
10	CH28-SOLO-R	4
8	CH29-SOLO-L	36
7	CH29-SOLO-R	3
5	CH30-SOLO-L	35
4	CH30-SOLO-R	2
1	not used	1
2	not used	34

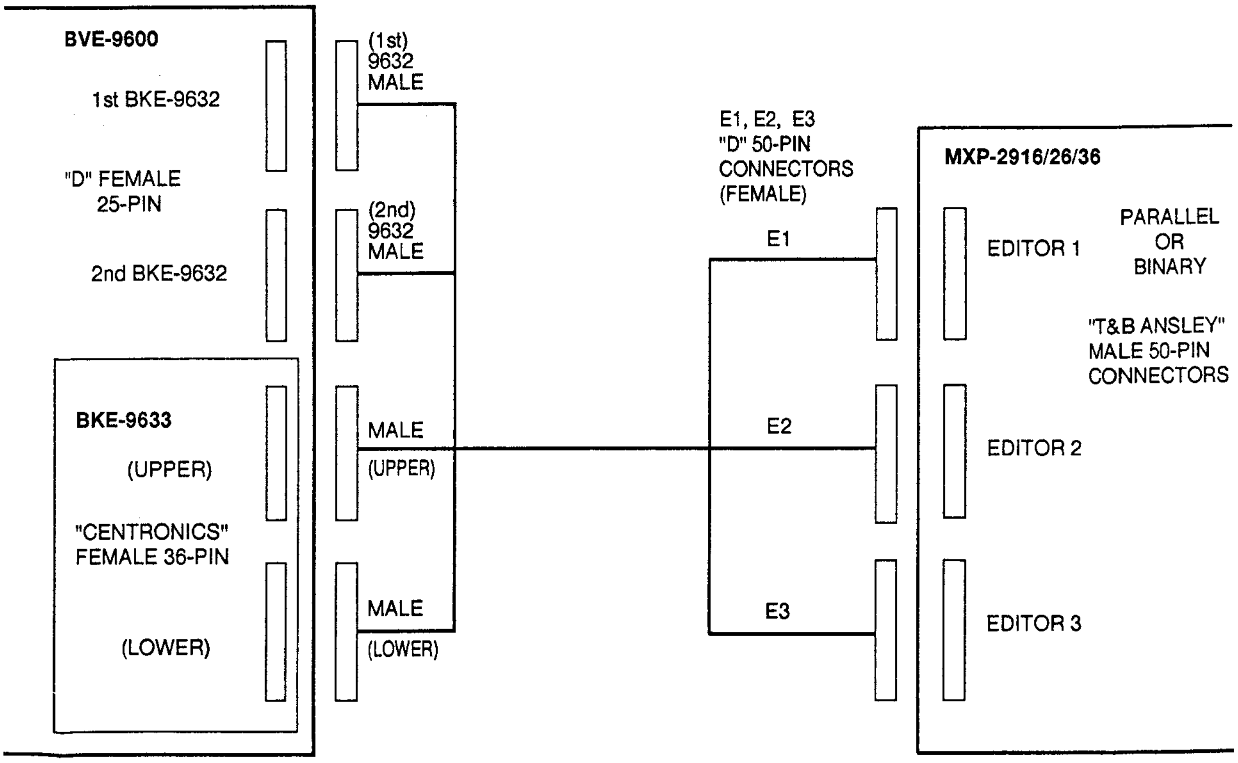
EDITOR 3		
AN	SIGNAL	NON
48	CH 21 VCA	33
48	CH 21 VCA	33
45	CH 22 VCA	32
42	CH 23 VCA	31
39	CH 24 VCA	30
36	CH 25 VCA	29
33	CH 26 VCA	28
30	CH 27 VCA	27
27	CH 28 VCA	26
24	CH 29 VCA	25
21	CH 30 VCA	24
50	CH21-SOLO-L	50
49	CH21-SOLO-R	17
47	CH22-SOLO-L	49
46	CH22-SOLO-R	16
44	CH23-SOLO-L	48
43	CH23-SOLO-R	15
41	CH24-SOLO-L	47
40	CH24-SOLO-R	14
38	CH25-SOLO-L	46
37	CH25-SOLO-R	13
35	CH26-SOLO-L	45
34	CH26-SOLO-R	12
32	CH27-SOLO-L	44
31	CH27-SOLO-R	11
29	CH28-SOLO-L	43
28	CH28-SOLO-R	10
26	CH29-SOLO-L	42
25	CH29-SOLO-R	9
23	CH30-SOLO-L	41
22	CH30-SOLO-R	8
20	SYS-GP-1	40
19	SYS-GP-2	7
18	SYS-GP-3	23
17	SYS-GP-4	39
16	PREVIEW-1	6
15	PREVIEW-2	22
14	PREVIEW-3	38
13	PREVIEW-4	5
12	MUTE-1	21
11	MUTE-2	37
10	MUTE-3	4
9	MUTE-4	20
5	BYPASS	35
4	+5V	2
3	ANALOG GND	18
2	DIGITAL GND	34
1	CHASSIS GND	1
6	not used	19
7	not used	3
8	not used	36

INTERCONNECT CABLE CONNECTOR ORIENTATION DIAGRAMS
(USE WITH WIRE LISTS)

BVE-900/BVE910 EDITOR TO CONSOLE


BVE-900/BVE-910
BKE-916/BKE-916A
"D" FEMALE 15-PIN
BKE-908
(UPPER)
"D" FEMALE
15-PIN'
CONNECTORS
(LOWER)
916
MALE
MALE
(UPPER)
MALE
(LOWER)
E1
E1, E3
"D" 50-PIN
CONNECTORS
(FEMALE)
E3
MXP-2916/26/36
EDITOR 1 (BINARY)
"T&B ANSLEY"
MALE 50-PIN
CONNECTORS
EDITOR 2
EDITOR 3

BVE-9000 EDITOR TO CONSOLE


BVE-9600
1st BKE-9632
"D" FEMALE
25-PIN
2nd BKE-9632
BKE-9633
(UPPER)
"CENTRONICS"
FEMALE 36-PIN
(LOWER)
(1st)
9632
MALE
(2nd)
9632
MALE
MALE
(UPPER)
MALE
(LOWER)
E1, E2, E3
"D" 50-PIN
CONNECTORS
(FEMALE)
E1
E2
E3
MXP-2916/26/36
EDITOR 1
PARALLEL
OR
BINARY
"T&B ANSLEY"
MALE 50-PIN
CONNECTORS
EDITOR 2
EDITOR 3

WIRING NOTES

Use Of SYS-GRP Control Lines For VCA Control

The following console slots are typically occupied by Group modules:

MXP-2916 - slots 13, 14, 15, and 16
MXP-2926 - slots 23, 24, 25, and 26
MXP-2936 - slots 33, 34, 35, and 36

The VCA lines for these slots, in all consoles, are available on the SYS-GP-1 through 4 pins in the EDITOR 3 connector.

Some 2-channel, mono mode, wiring charts presented here show SYS-GP-1 and 2 paired, and SYS-GP-3 and 4 paired. This is for convenience if standard Mono Input modules are installed in these slots instead of Group modules. If Group modules are configured in the console, however, there is normally no need to pair the SYS-GP lines although no technical problems will be evident if they are. One VCA line can be connected to SYS-GP-1 and another to SYS-GP-2. These VCAs could then by assigned to AUX1 and AUX2 in the editor. This will enable crossfades between sources dialed up as 1 and 2 on the thumbwheel switches located on each input module.

*** IMPORTANT ***

When taking the console output from the Group modules the **LOCAL** pushswitch on each Group module **MUST** be depressed. This will ensure that the output is not muted by a +5V signal from the editor that would appear on the SYS-GP lines if the switch was not depressed.

IMPORTANT

THE WIRE LISTS PRESENTED HERE ARE JUST A FEW EXAMPLES OF THE MANY EDITOR-TO-CONSOLE WIRING PROTOCOLS POSSIBLE. WIRING IS DETERMINED BY ACTUAL EDIT SYSTEM CONFIGURATION DESIRED BY THE USER.

FX16-1

FIXED RECORDER ASSIGNMENT, 2-CHANNEL

CONSOLE: **MXP-2916**
INPUT MODULES: **All Mono**
EDITOR WITH: **1 BKE-9632**
NIF INTERCONNECT: see Table 7-3

FROM EDITOR CONNECTOR		TO CONSOLE MATING CONNECTOR-PIN #		
Signal	**Pin #**	**non-Ansley**	**Ansley**	**Signal**
1st BKE-9632		**EDITOR 1**		
COMMON**	19	1, 34	1, 2	CON SENSE (FRAME GND)
VCA 1	3	33, 32	48, 45	VCA 1, VCA 2
VCA 2	4	31, 30	42, 39	VCA 3, VCA 4
VCA 3	5	29, 28	36, 33	VCA 5, VCA 6
VCA 4	6	27, 26	30, 27	VCA 7, VCA 8
VCA 5	7	25, 24	24, 21	VCA 9, VCA 10
VCA 6	8	23, 22	18, 15	VCA 11, VCA 12
		EDITOR 3		
VCA 7	9	40, 7	20, 19	SYS-GP-1, SYS-GP-2
VCA 8	10	23, 39	18, 17	SYS-GP-3, SYS-GP-4
EXT MON 1	20	6	16	PREVIEW 1
EXT MON 2	21	22	15	PREVIEW 2
MUTE 1	23	21	12	MUTE 1
MUTE 2	24	37	11	MUTE 2

** Must be connected for Editor Interface to function.

FIXED RECORDER ASSIGNMENT, 4-CHANNEL

FX16-2

CONSOLE: **MXP-2916**
INPUT MODULES: **All Mono**
EDITOR WITH: **2 BKE-9632**
NIF INTERCONNECT: see Table 7-3

FROM EDITOR CONNECTOR		TO CONSOLE MATING CONNECTOR-PIN #		
Signal	**Pin #**	**non-Ansley**	**Ansley**	**Signal**
1st BKE-9632		**EDITOR 1**		
COMMON**	19	1, 34	1, 2	CON SENSE (FRAME GND)
VCA 1	3	33, 32	48, 45	VCA 1, VCA 2
		31, 30	42, 39	VCA 3, VCA 4
VCA 2	4	29, 28	36, 33	VCA 5, VCA 6
		27, 26	30, 27	VCA 7, VCA 8
VCA 3	5	25, 24	24, 21	VCA 9, VCA 10
		23, 22	18, 15	VCA 11, VCA 12
VCA 4	6	21, 20	12, 9	VCA 13, VCA 14
		EDITOR 2		
		3, 32	48, 45	VCA 15, VCA 16
		EDITOR 3		
EXT MON 1	20	6	16	PREVIEW 1
EXT MON 2	21	22	15	PREVIEW 2
MUTE 1	23	21	12	MUTE 1
MUTE 2	24	37	11	MUTE 2
2nd BKE-9632				
EXT MON 1	20	38	14	PREVIEW 3
EXT MON 2	21	5	13	PREVIEW 4
MUTE 1	23	4	10	MUTE 3
MUTE 2	24	20	9	MUTE 4

** Must be connected for Editor Interface to function.

FX16-3

FIXED RECORDER ASSIGNMENT, 2-CHANNEL

CONSOLE:	**MXP-2916**
INPUT MODULES:	**All Stereo**
EDITOR WITH:	**2 BKE-9632**
NIF INTERCONNECT:	see Table 7-3

FROM EDITOR CONNECTOR		TO CONSOLE MATING CONNECTOR-PIN #		
Signal	**Pin #**	**non-Ansley**	**Ansley**	**Signal**
1st BKE-9632		**EDITOR 1**		
COMMON**	19	1, 34	1, 2	CON SENSE (FRAME GND)
VCA 1	3	33	48	VCA 1
VCA 2	4	32	45	VCA 2
VCA 3	5	31	42	VCA 3
VCA 4	6	30	39	VCA 4
VCA 5	7	29	36	VCA 5
VCA 6	8	28	33	VCA 6
VCA 7	9	27	30	VCA 7
VCA 8	10	26	27	VCA 8
VCA 9	11	25	24	VCA 9
VCA 10	12	24	21	VCA 10
VCA 11	13	23	18	VCA 11
VCA 12	14	22	15	VCA 12
		EDITOR 3		
EXT MON 1	20	6	16	PREVIEW 1
EXT MON 2	21	22	15	PREVIEW 2
MUTE 1	23	21	12	MUTE 1
MUTE 2	24	37	11	MUTE 2
2nd BKE-9632		**EDITOR 1**		
VCA 1	3	21	12	VCA 13
VCA 2	4	20	9	VCA 14
		EDITOR 2		
VCA 3	5	33	48	VCA 15
VCA 4	6	32	45	VCA 16

** Must be connected for Editor Interface to function.

FREE RECORDER ASSIGNMENT, 2-CHANNEL

FR16-1

CONSOLE: **MXP-2916**
INPUT MODULES: **All Mono**
EDITOR WITH: **1 BKE-9632, 1 BKE-9633**
NIF INTERCONNECT: see Table 7-5 (1 of 6)

FROM EDITOR CONNECTOR		TO CONSOLE MATING CONNECTOR-PIN #		
Signal	**Pin #**	**non-Ansley**	**Ansley**	**Signal**
1st BKE-9632		**EDITOR 1**		
COMMON**	19	1, 34	1, 2	CON SENSE (FRAME GND)
VCA 1	3	33, 32	48, 45	VCA 1, VCA 2
VCA 2	4	31, 30	42, 39	VCA 3, VCA 4
VCA 3	5	29, 28	36, 33	VCA 5, VCA 6
VCA 4	6	27, 26	30, 27	VCA 7, VCA 8
VCA 5	7	25, 24	24, 21	VCA 9, VCA 10
VCA 6	8	23, 22	18, 15	VCA 11, VCA 12
		EDITOR 3		
VCA 7	9	40, 7	20, 19	SYS-GP-1, SYS-GP-2
VCA 8	10	23, 39	18, 17	SYS-GP-3, SYS-GP-4
BKE-9633 (UPPER)		**EDITOR 1**		
GND **	36	1, 34	1, 2	CON SENSE (FRAME GND)
A1 SELECT-1	13	50	50	A1-1
A1 SELECT-2	14	48	44	A1-2
A1 SELECT-3	15	46	38	A1-3
A1 SELECT-4	16	44	32	A1-4
A1 SELECT-5	17*	42*	26*	A1-5
A2 SELECT-1	25	16	46	A2-1
A2 SELECT-2	26	14	40	A2-2
A2 SELECT-3	27	12	34	A2-3
A2 SELECT-4	28	10	28	A2-4
A2 SELECT-5	29*	9*	25*	A2-5

*Only needed if more than 14 machines (VCAs) are used.
** Must be connected for Editor Interface to function.

FREE RECORDER ASSIGNMENT, 4-CHANNEL

FR16-2

CONSOLE: **MXP-2916**
INPUT MODULES: **All Stereo**
EDITOR WITH: **1 BKE-9632, 1 BKE-9633**
NIF INTERCONNECT: see Table 7-5 (1 of 6)

FROM EDITOR CONNECTOR		**TO CONSOLE MATING CONNECTOR-PIN #**		
Signal	**Pin #**	**non-Ansley**	**Ansley**	**Signal**
1st BKE-9632		**EDITOR 1**		
COMMON**	19	1, 34	1, 2	CON SENSE (FRAME GND)
VCA 1	3	33, 32	48, 45	VCA 1, VCA 2
VCA 2	4	31, 30	42, 39	VCA 3, VCA 4
VCA 3	5	29, 28	36, 33	VCA 5, VCA 6
VCA 4	6	27, 26	30, 27	VCA 7, VCA 8
VCA 5	7	25, 24	24, 21	VCA 9, VCA 10
VCA 6	8	23, 22	18, 15	VCA 11, VCA 12
		EDITOR 3		
VCA 7	9	40	20	SYS-GP-1
VCA 8	10	7	19	SYS-GP-2
VCA 9	9	23	18	SYS-GP-3
VCA 10	10	29	17	SYS-GP-4
BKE-9633 (UPPER)		**EDITOR 1**		
GND **	36	1, 34	1, 2	CON SENSE (FRAME GND)
A1 SELECT-1	13	50	50	A1-1
A1 SELECT-2	14	48	44	A1-2
A1 SELECT-3	15	46	38	A1-3
A1 SELECT-4	16	44	32	A1-4
A1 SELECT-5	17*	42*	26*	A1-5
A2 SELECT-1	25	16	46	A2-1
A2 SELECT-2	26	14	40	A2-2
A2 SELECT-3	27	12	34	A2-3
A2 SELECT-4	28	10	28	A2-4
A2 SELECT-5	29*	9*	25*	A2-5
BKE-9633 (LOWER)		**EDITOR 1**		
GND **	36	1, 34	1, 2	CON SENSE (FRAME GND)
A3 SELECT-1	13	49	47	A3-1
A3 SELECT-2	14	47	41	A3-2
A3 SELECT-3	15	45	35	A3-3
A3 SELECT-4	16	43	29	A3-4
A3 SELECT-5	17*	41*	23*	A3-5
A4 SELECT-1	25	17	49	A4-1
A4 SELECT-2	26	15	43	A4-2
A4 SELECT-3	27	13	37	A4-3
A4 SELECT-4	28	11	31	A4-4
A4 SELECT-5	29*	8*	22*	A4-5

* Only needed if more than 14 machines (VCAs) are used.
** Must be connected for Editor Interface to function.

FX26-1

FIXED RECORDER ASSIGNMENT, 2-CHANNEL

CONSOLE:	**MXP-2926**
INPUT MODULES:	**All Mono**
EDITOR WITH:	**2 BKE-9632**
NIF INTERCONNECT:	see Table 7-3

FROM EDITOR CONNECTOR		TO CONSOLE MATING CONNECTOR-PIN #		
Signal	**Pin #**	**non-Ansley**	**Ansley**	**Signal**
1st BKE-9632		**EDITOR 1**		
COMMON**	19	1, 34	1, 2	CON SENSE (FRAME GND)
VCA 1	3	33, 32	48, 45	VCA 1, VCA 2
VCA 2	4	31, 30	42, 39	VCA 3, VCA 4
VCA 3	5	29, 28	36, 33	VCA 5, VCA 6
VCA 4	6	27, 26	30, 27	VCA 7, VCA 8
VCA 5	7	25, 24	24, 21	VCA 9, VCA 10
VCA 6	8	23, 22	18, 15	VCA 11, VCA 12
VCA 9	11	21, 20	12, 9	VCA 13, VCA 14
		EDITOR 3		
VCA 7	9	40, 7	20, 19	SYS-GP-1, SYS-GP-2
VCA 8	10	23, 39	18, 17	SYS-GP-3, SYS-GP-4
EXT MON 1	20	6	16	PREVIEW 1
EXT MON 2	21	22	15	PREVIEW 2
MUTE 1	23	21	12	MUTE 1
MUTE 2	24	37	11	MUTE 2
		EDITOR 2		
VCA 10	12	33, 32	48, 45	VCA 15, VCA 16
VCA 11	13	31, 30	42, 39	VCA 17, VCA 18
VCA 12	14	29, 28	36, 33	VCA 19, VCA 20
2nd BKE-9632				
VCA 13	3	27, 26	30, 27	VCA 21, VCA 22

** Must be connected for Editor Interface to function.

FIXED RECORDER ASSIGNMENT, 2-CHANNEL

FX26-2

CONSOLE: **MXP-2926**
INPUT MODULES: **All Stereo**
EDITOR WITH: **2 BKE-9632**
NIF INTERCONNECT: see Table 7-3

FROM EDITOR CONNECTOR		**TO CONSOLE MATING CONNECTOR-PIN #**		
Signal	**Pin #**	**non-Ansley**	**Ansley**	**Signal**
1st BKE-9632		**EDITOR 1**		
COMMON**	19	1, 34	1, 2	CON SENSE (FRAME GND)
VCA 1	3	33	48	VCA 1
VCA 2	4	32	45	VCA 2
VCA 3	5	31	42	VCA 3
VCA 4	6	30	39	VCA 4
VCA 5	7	29	36	VCA 5
VCA 6	8	28	33	VCA 6
VCA 7	9	27	30	VCA 7
VCA 8	10	26	27	VCA 8
VCA 9	11	25	24	VCA 9
VCA 10	12	24	21	VCA 10
VCA 11	13	23	18	VCA 11
VCA 12	14	22	15	VCA 12
		EDITOR 3		
EXT MON 1	20	6	16	PREVIEW 1
EXT MON 2	21	22	15	PREVIEW 2
MUTE 1	23	21	12	MUTE 1
MUTE 2	24	37	11	MUTE 2
2nd BKE-9632		**EDITOR 1**		
VCA 1	PB-3	21	12	VCA 13
VCA 2	PB-4	20	9	VCA 14
		EDITOR 2		
VCA 3	5	33	48	VCA 15
VCA 4	6	32	45	VCA 16
VCA 5	7	31	42	VCA 17
VCA 6	8	30	39	VCA 18
VCA 7	9	29	36	VCA 19
VCA 8	10	28	33	VCA 20
VCA 9	11	27	30	VCA 21
VCA 10	12	26	27	VCA 22
VCA 11	13	25	24	VCA 23
VCA 12	14	24	21	VCA 24

** Must be connected for Editor Interface to function.

FREE RECORDER ASSIGNMENT, 2-CHANNEL

FR26-1

CONSOLE: **MXP-2926**
INPUT MODULES: **All Mono**
EDITOR WITH: **2 BKE-9632, 1 BKE-9633**
NIF INTERCONNECT: see Table 7-5 (2 of 6)

FROM EDITOR CONNECTOR		**TO CONSOLE MATING CONNECTOR-PIN #**		
Signal	**Pin #**	**non-Ansley**	**Ansley**	**Signal**
1st BKE-9632		**EDITOR 1**		
COMMON**	19	1, 34	1, 2	CON SENSE (FRAME GND)
VCA 1	3	33, 32	48, 45	VCA 1, VCA 2
VCA 2	4	31, 30	42, 39	VCA 3, VCA 4
VCA 3	5	29, 28	36, 33	VCA 5, VCA 6
VCA 4	6	27, 26	30, 27	VCA 7, VCA 8
VCA 5	7	25, 24	24, 21	VCA 9, VCA 10
VCA 6	8	23, 22	18, 15	VCA 11, VCA 12
VCA 7	9	21, 20	12, 9	VCA 13, VCA 14
		EDITOR 2		
VCA 8	10	33, 32	48, 45	VCA 15, VCA 16
VCA 9	11	31, 30	42, 39	VCA 17, VCA 18
VCA 10	12	29, 28	36, 33	VCA 19, VCA 20
VCA 11	13	27, 26	30, 27	VCA 21, VCA 22
		EDITOR 3		
VCA 12	14	40, 7	20, 19	SYS-GP-1, SYS-GP-2
2nd BKE-9632				
VCA 13	3	23, 39	18, 17	SYS-GP-3, SYS-GP-4
BKE-9633 (UPPER)		**EDITOR 1**		
GND **	36	1, 34	1, 2	CON SENSE (FRAME GND)
A1 SELECT-1	13	50	50	A1-1
A1 SELECT-2	14	48	44	A1-2
A1 SELECT-3	15	46	38	A1-3
A1 SELECT-4	16	44	32	A1-4
A1 SELECT-5	17*	42*	26*	A1-5
A2 SELECT-1	25	16	46	A2-1
A2 SELECT-2	26	14	40	A2-2
A2 SELECT-3	27	12	34	A2-3
A2 SELECT-4	28	10	28	A2-4
A2 SELECT-5	29*	9*	25*	A2-5

* Only needed if more than 14 machines (VCAs) are used.
** Must be connected for Editor Interface to function.

FREE RECORDER ASSIGNMENT, 4-CHANNEL

FR26-2

CONSOLE:	**MXP-2926**
INPUT MODULES:	**All Mono**
EDITOR WITH:	**1 BKE-9632, 1 BKE-9633**
NIF INTERCONNECT:	see Table 7-5 (1 of 6)

FROM EDITOR CONNECTOR		**TO CONSOLE MATING CONNECTOR-PIN #**		
Signal	**Pin #**	**non-Ansley**	**Ansley**	**Signal**
1st BKE-9632		**EDITOR 1**		
COMMON**	19	1, 34	1, 2	CON SENSE (FRAME GND)
VCA 1	3	33, 32	48, 45	VCA 1, VCA 2
		31, 30	42, 39	VCA 3, VCA 4
VCA 2	4	29, 28	36, 33	VCA 5, VCA 6
		27, 26	30, 27	VCA 7, VCA 8
VCA 3	5	25, 24	24, 21	VCA 9, VCA 10
		23, 22	18, 15	VCA 11, VCA 12
VCA 4	6	21, 20	12, 9	VCA 13, VCA 14
		EDITOR 2		
		33, 32	48, 45	VCA 15, VCA 16
VCA 5	7	31, 30	42, 39	VCA 17, VCA 18
		29, 28	36, 33	VCA 19, VCA 20
VCA 6	8	27, 26	30, 27	VCA 21, VCA 22
		EDITOR 3		
VCA 7	9	40	20	SYS-GP-1
VCA 8	10	7	19	SYS-GP-2
VCA 9	11	23	18	SYS-GP-3
VCA 10	12	39	17	SYS-GP-4
BKE-9633 (UPPER)		**EDITOR 1**		
GND **	36	1, 34	1, 2	CON SENSE (FRAME GND)
A1 SELECT-1	13	50	50	A1-1
A1 SELECT-2	14	48	44	A1-2
A1 SELECT-3	15	46	38	A1-3
A1 SELECT-4	16	44	32	A1-4
A1 SELECT-5	17*	42*	26*	A1-5
A2 SELECT-1	25	16	46	A2-1
A2 SELECT-2	26	14	40	A2-2
A2 SELECT-3	27	12	34	A2-3
A2 SELECT-4	28	10	28	A2-4
A2 SELECT-5	29*	9*	25*	A2-5
BKE-9633 (LOWER)				
GND **	36	1, 34	1, 2	CON SENSE (FRAME GND)
A3 SELECT-1	13	49	47	A3-1
A3 SELECT-2	14	47	41	A3-2
A3 SELECT-3	15	45	35	A3-3
A3 SELECT-4	16	43	29	A3-4
A3 SELECT-5	17*	41*	23*	A3-5
A4 SELECT-1	25	17	49	A4-1
A4 SELECT-2	26	15	43	A4-2
A4 SELECT-3	27	13	37	A4-3
A4 SELECT-4	28	11	31	A4-4
A4 SELECT-5	29*	8*	22*	A4-5

* Only needed if more than 14 machines (VCAs) are used.

** Must be connected for Editor Interface to function.

FREE RECORDER ASSIGNMENT, 4-CHANNEL

FR26-3

CONSOLE:	**MXP-2926**
INPUT MODULES:	**All Stereo**
EDITOR WITH:	**2 BKE-9632, 1 BKE-9633**
NIF INTERCONNECT:	see Table 7-5 (2 of 6)

FROM EDITOR CONNECTOR		**TO CONSOLE MATING CONNECTOR-PIN #**		
Signal	**Pin #**	**non-Ansley**	**Ansley**	**Signal**
1st BKE-9632		**EDITOR 1**		
COMMON**	19	1, 34	1, 2	CON SENSE (FRAME GND)
VCA 1	3	33, 32	48, 45	VCA 1, VCA 2
VCA 2	4	31, 30	42, 39	VCA 3, VCA 4
VCA 3	5	29, 28	36, 33	VCA 5, VCA 6
VCA 4	6	27, 26	30, 27	VCA 7, VCA 8
VCA 5	7	25, 24	24, 21	VCA 9, VCA 10
VCA 6	8	23, 22	18, 15	VCA 11, VCA 12
VCA 7	9	21, 20	12, 9	VCA 13, VCA 14
		EDITOR 2		
VCA 8	10	33, 32	48, 45	VCA 15, VCA 16
VCA 9	11	31, 30	42, 39	VCA 17, VCA 18
VCA 10	12	29, 28	36, 33	VCA 19, VCA 20
VCA 11	13	27, 26	30, 27	VCA 21, VCA 22
		EDITOR 3		
VCA 12	14	40	20	SYS-GP-1
2nd BKE-9632				
VCA 8	10	7	19	SYS-GP-2
VCA 9	11	23	18	SYS-GP-3
VCA 10	12	39	17	SYS-GP-4
BKE-9633 (UPPER)		**EDITOR 1**		
GND **	36	1, 34	1, 2	CON SENSE (FRAME GND)
A1 SELECT-1	13	50	50	A1-1
A1 SELECT-2	14	48	44	A1-2
A1 SELECT-3	15	46	38	A1-3
A1 SELECT-4	16	44	32	A1-4
A1 SELECT-5	17*	42*	26*	A1-5
A2 SELECT-1	25	16	46	A2-1
A2 SELECT-2	26	14	40	A2-2
A2 SELECT-3	27	12	34	A2-3
A2 SELECT-4	28	10	28	A2-4
A2 SELECT-5	29*	9*	25*	A2-5
BKE-9633 (LOWER)				
GND **	36	1, 34	1, 2	CON SENSE (FRAME GND)
A3 SELECT-1	13	49	47	A3-1
A3 SELECT-2	14	47	41	A3-2
A3 SELECT-3	15	45	35	A3-3
A3 SELECT-4	16	43	29	A3-4
A3 SELECT-5	17*	41*	23*	A3-5
A4 SELECT-1	25	17	49	A4-1
A4 SELECT-2	26	15	43	A4-2
A4 SELECT-3	27	13	37	A4-3
A4 SELECT-4	28	11	31	A4-4
A4 SELECT-5	29*	8*	22*	A4-5

* Only needed if more than 14 machines (VCAs) are used.

** Must be connected for Editor Interface to function.

FIXED RECORDER ASSIGNMENT, 2-CHANNEL

FX36-1

CONSOLE: **MXP-2936**
INPUT MODULES: **All Mono**
EDITOR WITH: **2 BKE-9632**
NIF INTERCONNECT: see Table 7-3

FROM EDITOR CONNECTOR		**TO CONSOLE MATING CONNECTOR-PIN #**		
Signal	**Pin #**	**non-Ansley**	**Ansley**	**Signal**
1st BKE-9632		**EDITOR 1**		
COMMON**	25	1, 34	1, 2	CON SENSE (FRAME GND)
VCA 1	3	33, 32	48, 45	VCA 1, VCA 2
VCA 2	4	31, 30	42, 39	VCA 3, VCA 4
VCA 3	5	29, 28	36, 33	VCA 5, VCA 6
VCA 4	6	27, 26	30, 27	VCA 7, VCA 8
VCA 5	7	25, 24	24, 21	VCA 9, VCA 10
VCA 6	8	23, 22	18, 15	VCA 11, VCA 12
VCA 9	11	21, 20	12, 9	VCA 13, VCA 14
		EDITOR 3		
VCA 7	9	40, 7	20, 19	SYS-GP-1, SYS-GP-2
VCA 8	10	23, 39	18, 17	SYS-GP-3, SYS-GP-4
EXT MON 1	20	6	16	PREVIEW 1
EXT MON 2	21	22	15	PREVIEW 2
MUTE 1	23	21	12	MUTE 1
MUTE 2	24	37	11	MUTE 2
		EDITOR 2		
VCA 10	12	33, 32	48, 45	VCA 15, VCA 16
VCA 11	13	31, 30	42, 39	VCA 17, VCA 18
VCA 12	14	29, 28	36, 33	VCA 19, VCA 20
2nd BKE-9632				
VCA 13	3	27, 26	30, 27	VCA 21, VCA 22
VCA 14	4	25, 24	24, 21	VCA 23, VCA 24
VCA 15	5	23, 22	18, 15	VCA 25, VCA 26
VCA 16	6	11, 20	12, 9	VCA 27, VCA 28
VCA 17	7	19, 18	6, 3	VCA 29, VCA 30

** Must be connected for Editor Interface to function.

FREE RECORDER ASSIGNMENT, 2-CHANNEL

FR36-1

CONSOLE: **MXP-2936**
INPUT MODULES: **All Mono**
EDITOR WITH: **2 BKE-9632, 1 BKE-9633**
NIF INTERCONNECT: see Table 7-5 (4 of 6)

FROM EDITOR CONNECTOR		**TO CONSOLE MATING CONNECTOR-PIN #**		
Signal	**Pin #**	**non-Ansley**	**Ansley**	**Signal**
1st BKE-9632		**EDITOR 1**		
COMMON**	19	1, 34	1, 2	CON SENSE (FRAME GND)
VCA 1	3	33, 32	48, 45	VCA 1, VCA 2
VCA 2	4	31, 30	42, 39	VCA 3, VCA 4
VCA 3	5	29, 28	36, 33	VCA 5, VCA 6
VCA 4	6	27, 26	30, 27	VCA 7, VCA 8
VCA 5	7	25, 24	24, 21	VCA 9, VCA 10
VCA 6	8	23, 22	18, 15	VCA 11, VCA 12
VCA 7	9	21, 20	12, 9	VCA 13, VCA 14
		EDITOR 2		
VCA 8	10	33, 32	48, 45	VCA 15, VCA 16
VCA 9	11	31, 30	42, 39	VCA 17, VCA 18
VCA 10	12	29, 28	36, 33	VCA 19, VCA 20
VCA 11	13	27, 26	30, 27	VCA 21, VCA 22
VCA 12	14	40, 7	20, 19	VCA 23, VCA 24
2nd BKE-9632				
VCA 1	3	23, 22	18, 15	VCA 25, VCA 26
VCA 2	4	21, 20	12, 9	VCA 27, VCA 28
VCA 3	5	19, 18	6, 3	VCA 29, VCA 30
		EDITOR 3		
VCA 5	7	40, 7	20, 19	SYS-GP-1, SYS-GP-2
VCA 6	8	23, 39	18, 17	SYS-GP-3, SYS-GP-4
BKE-9633 (UPPER)		**EDITOR 1**		
GND **	36	1, 34	1, 2	CON SENSE (FRAME GND)
A1 SELECT-1	13	50	50	A1-1
A1 SELECT-2	14	48	44	A1-2
A1 SELECT-3	15	46	38	A1-3
A1 SELECT-4	16	44	32	A1-4
A1 SELECT-5	17*	42*	26*	A1-5
A2 SELECT-1	25	16	46	A2-1
A2 SELECT-2	26	14	40	A2-2
A2 SELECT-3	27	12	34	A2-3
A2 SELECT-4	28	10	28	A2-4
A2 SELECT-5	29*	9*	25*	A2-5

* Only needed if more than 14 machines (VCAs) are used.
** Must be connected for Editor Interface to function.

FREE RECORDER ASSIGNMENT, 4-CHANNEL

FR36-2

CONSOLE:	**MXP-2936**
INPUT MODULES:	**All Mono**
EDITOR WITH:	**1 BKE-9632, 1 BKE-9633**
NIF INTERCONNECT:	see Table 7-5 (4 of 6)

FROM EDITOR CONNECTOR		TO CONSOLE MATING CONNECTOR-PIN #		
Signal	**Pin #**	**non-Ansley**	**Ansley**	**Signal**
1st BKE-9632		**EDITOR 1**		
COMMON**	19	1, 34	1, 2	CON SENSE (FRAME GND)
VCA 1	3	33, 32	48, 45	VCA 1, VCA 2
		31, 30	42, 39	VCA 3, VCA 4
VCA 2	4	29, 28	36, 33	VCA 5, VCA 6
		27, 26	30, 27	VCA 7, VCA 8
VCA 3	5	25, 24	24, 21	VCA 9, VCA 10
		23, 22	18, 15	VCA 11, VCA 12
VCA 4	6	21, 20	12, 9	VCA 13, VCA 14
		EDITOR 2		
		33, 32	48, 45	VCA 15, VCA 16
VCA 5	7	31, 30	42, 39	VCA 17, VCA 18
		29, 28	36, 33	VCA 19, VCA 20
VCA 6	8	27, 26	30, 27	VCA 21, VCA 22
		25, 24	24, 21	VCA 23, VCA 24
VCA 7	9	23, 22	18, 15	VCA 25, VCA 26
		21, 20	12, 9	VCA 27, VCA 28
VCA 8	10	19, 18	6, 3	VCA 29, VCA 30
		33, 32	48, 45	VCA 31, VCA 32
		EDITOR 3		
VCA 9	11	40	20	SYS-GP-1
VCA 10	12	7	19	SYS-GP-2
VCA 11	13	23	18	SYS-GP-3
VCA 12	14	39	17	SYS-GP-4
BKE-9633 (UPPER)		**EDITOR 1**		
GND **	36	1, 34	1, 2	CON SENSE (FRAME GND)
A1 SELECT-1	13	50	50	A1-1
A1 SELECT-2	14	48	44	A1-2
A1 SELECT-3	15	46	38	A1-3
A1 SELECT-4	16	44	32	A1-4
A1 SELECT-5	17*	42*	26*	A1-5
A2 SELECT-1	25	16	46	A2-1
A2 SELECT-2	26	14	40	A2-2
A2 SELECT-3	27	12	34	A2-3
A2 SELECT-4	28	10	28	A2-4
A2 SELECT-5	29*	9*	25*	A2-5
BKE-9633 (LOWER)				
GND **	36	1, 34	1, 2	CON SENSE (FRAME GND)
A3 SELECT-1	13	49	47	A3-1
A3 SELECT-2	14	47	41	A3-2
A3 SELECT-3	15	45	35	A3-3
A3 SELECT-4	16	43	29	A3-4
A3 SELECT-5	17*	41*	23*	A3-5
A4 SELECT-1	25	17	49	A4-1
A4 SELECT-2	26	15	43	A4-2
A4 SELECT-3	27	13	37	A4-3
A4 SELECT-4	28	11	31	A4-4
A4 SELECT-5	29*	8*	22*	A4-5

* Only needed if more than 14 machines (VCAs) are used.
** Must be connected for Editor Interface to function.

FREE RECORDER ASSIGNMENT, 4-CHANNEL

FR36-3

CONSOLE: **MXP-2936**
INPUT MODULES: **All Stereo**
EDITOR WITH: **2 BKE-9632, 1 BKE-9633**
NIF INTERCONNECT: see Table 7-5 (4 of 6)

FROM EDITOR CONNECTOR		TO CONSOLE MATING CONNECTOR-PIN #		
Signal	**Pin #**	**non-Ansley**	**Ansley**	**Signal**
1st BKE-9632		**EDITOR 1**		
COMMON**	19	1, 34	1, 2	CON SENSE (FRAME GND)
VCA 1	3	33, 32	48, 45	VCA 1, VCA 2
VCA 2	4	31, 30	42, 39	VCA 3, VCA 4
VCA 3	5	29, 28	36, 33	VCA 5, VCA 6
VCA 4	6	27, 26	30, 27	VCA 7, VCA 8
VCA 5	7	25, 24	24, 21	VCA 9, VCA 10
VCA 6	8	23, 22	18, 15	VCA 11, VCA 12
VCA 7	9	21, 20	12, 9	VCA 13, VCA 14
		EDITOR 2		
VCA 8	10	33, 32	48, 45	VCA 15, VCA 16
VCA 9	11	31, 30	42, 39	VCA 17, VCA 18
VCA 10	12	29, 28	36, 33	VCA 19, VCA 20
VCA 11	13	27, 26	30, 27	VCA 21, VCA 22
VCA 12	14	25, 24	24, 21	VCA 23, VCA 24
2nd BKE-9632				
VCA 13	3	23, 22	18, 15	VCA 25, VCA 26
VCA 14	4	21, 20	12, 9	VCA 27, VCA 28
VCA 15	5	19, 18	6, 3	VCA 29, VCA 30
		EDITOR 3		
VCA 17	7	40	20	SYS-GP-1
VCA 18	8	7	19	SYS-GP-2
VCA 19	9	23	18	SYS-GP-3
VCA 20	10	39	17	SYS-GP-4
BKE-9633 (UPPER)		**EDITOR 1**		
GND **	36	1, 34	1, 2	CON SENSE (FRAME GND)
A1 SELECT-1	13	50	50	A1-1
A1 SELECT-2	14	48	44	A1-2
A1 SELECT-3	15	46	38	A1-3
A1 SELECT-4	16	44	32	A1-4
A1 SELECT-5	17*	42*	26*	A1-5
A2 SELECT-1	25	16	46	A2-1
A2 SELECT-2	26	14	40	A2-2
A2 SELECT-3	27	12	34	A2-3
A2 SELECT-4	28	10	28	A2-4
A2 SELECT-5	29*	9*	25*	A2-5
BKE-9633 (LOWER)				
GND **	36	1, 34	1, 2	CON SENSE (FRAME GND)
A3 SELECT-1	13	49	47	A3-1
A3 SELECT-2	14	47	41	A3-2
A3 SELECT-3	15	45	35	A3-3
A3 SELECT-4	16	43	29	A3-4
A3 SELECT-5	17*	41*	23*	A3-5
A4 SELECT-1	25	17	49	A4-1
A4 SELECT-2	26	15	43	A4-2
A4 SELECT-3	27	13	37	A4-3
A4 SELECT-4	28	11	31	A4-4
A4 SELECT-5	29*	8*	22*	A4-5

* Only needed if more than 14 machines (VCAs) are used.

** Must be connected for Editor Interface to function.

APPENDIX D

VTR-CONSOLE-EDITOR WIRING DIAGRAMS

CONTENTS

Wire Lists - Console I/O Connectors, Connections Commonly Used For Editing .... APP D-2

WIRING DIAGRAMS QUICK FIND CHART

	EDITOR			CONSOLE MXP-			ASN MODE		VTRs			INPUT MODULES			
No	900	910	9000	2916	2926	2936	FIXD	FREE	2CH	4CH	MIXD	MONO	STER	MIXD	Page
1			x	x	x		x		x			x			APP D-3

WIRE LISTS - CONSOLE I/O CONNECTORS CONNECTIONS COMMONLY USED FOR EDITING

MONO INPUT MODUL I/O CONN	
13	INPUT B HI
42	INPUT B LO
41	INPUT B SHIELD
16	INPUT A HI
45	INPUT A LO
15	INPUT A SHIELD

MASTER MODULE I/O CONN	
12	MIX A L HI
41	MIX A L LO
11	MIX A R HI
40	MIX A R LO
23	GND

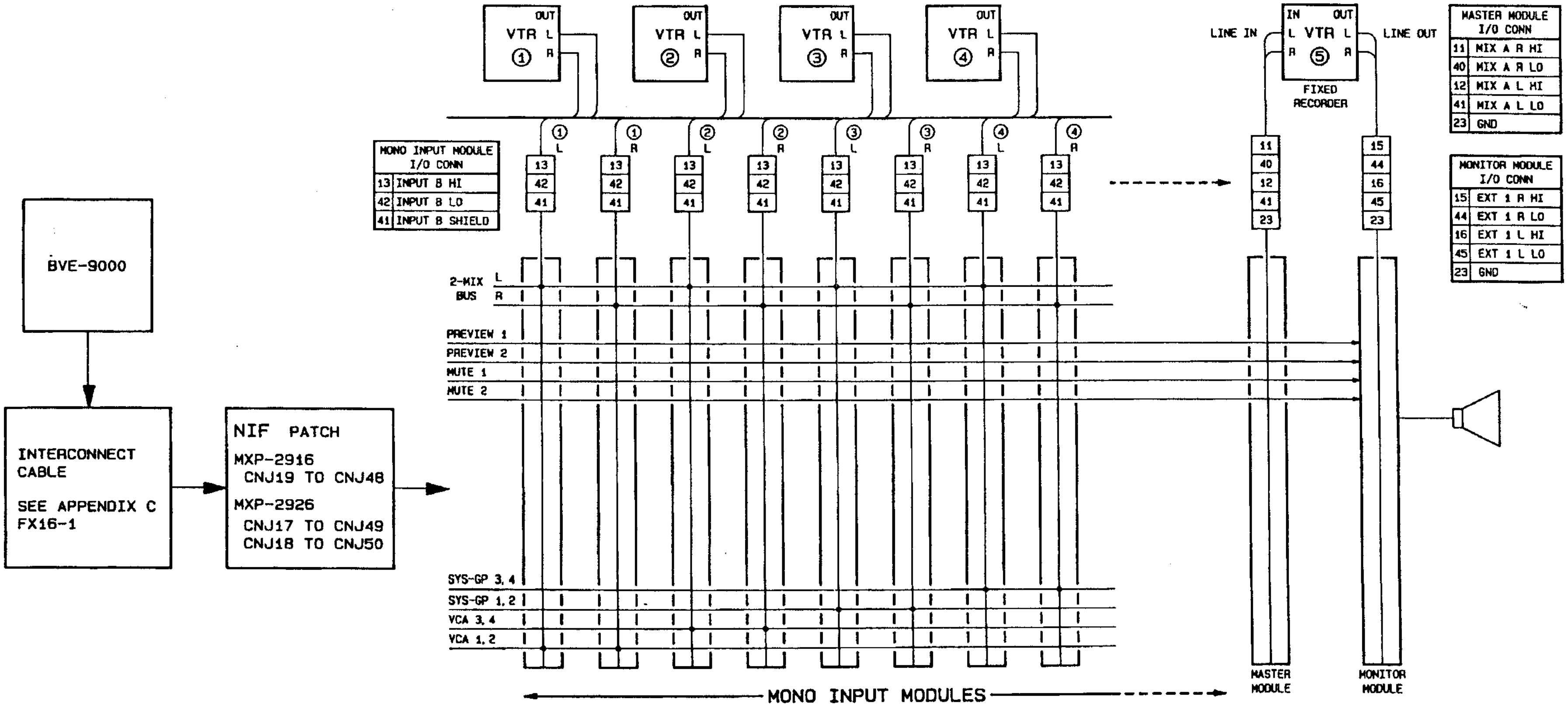
STEREO INPUT MODULE I/O CONN	
13	INPUT 1 R HI
42	INPUT 1 R LO
16	INPUT 1 L HI
45	INPUT 1 L LO
9	INPUT 2 R HI
38	INPUT 2 R LO
10	INPUT 2 L HI
39	INPUT 2 L LO
7	INPUT 3 R HI
36	INPUT 3 R LO
8	INPUT 3 L HI
37	INPUT 3 L LO

MONITOR MODULE I/0 CONN	
15	EXT 1 R HI
44	EXT 1 R LO
16	EXT 1 L HI
45	EXT 1 L LO
7	CONT RM LS R HI
22	CONT RM LS R LO
8	CONT RM LS L HI
37	CONT RM LS L LO
2	GND

GROUP MODULE I/O CONN	
	2-CHANNEL
16	GROUP OUT HI
45	GROUP OUT LO
23	GND
	4-CHANNEL
16	GROUP OUT HI
45	GROUP OUT LO
12	RETURN HI
41	RETURN LO
23	GND

COMMUNICATION MODULE I/O CONN
Jumper 2 TALKBACK/PFL OUT to 31 CONSOLE LS AMP enables console speaker

MXP-2916/MXP-2926 WIRING DIAGRAM
FIXED, 2-CHANNEL, MONO INPUT MODULES


BVE-9000
INTERCONNECT CABLE
SEE APPENDIX C FX16-1
NIF PATCH
MXP-2916
CNJ19 TO CNJ48
MXP-2926
CNJ17 TO CNJ49
CNJ18 TO CNJ50
OUT
VTR ①
VTR ②
VTR ③
VTR ④
L
R
MONO INPUT MODULE I/O CONN
13 INPUT B HI
42 INPUT B LO
41 INPUT B SHIELD
① L
① R
② L
② R
③ L
③ R
④ L
④ R
13
42
41
2-MIX BUS L
R
PREVIEW 1
PREVIEW 2
MUTE 1
MUTE 2
SYS-GP 3, 4
SYS-GP 1, 2
VCA 3, 4
VCA 1, 2
MONO INPUT MODULES
LINE IN
IN
OUT
VTR ⑤
FIXED RECORDER
LINE OUT
11
40
12
41
23
15
44
16
45
23
MASTER MODULE
MONITOR MODULE
MASTER MODULE I/O CONN
11 MIX A R HI
40 MIX A R LO
12 MIX A L HI
41 MIX A L LO
23 GND
MONITOR MODULE I/O CONN
15 EXT 1 R HI
44 EXT 1 R LO
16 EXT 1 L HI
45 EXT 1 L LO
23 GND

APPENDIX E

DECIMAL-BINARY-HEXIDECIMAL CONVERSION CHART

DECIMAL	BINARY	HEXIDECIMAL
0	0000	0
1	0001	1
2	0010	2
3	0011	3
4	0100	4
5	0101	5
6	0110	6
7	0111	7
8	1000	8
9	1001	9
10	1010	A
11	1011	B
12	1100	C
13	1101	D
14	1110	E
15	1111	F